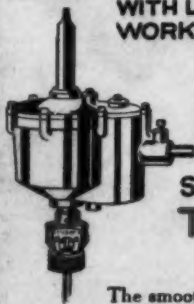


Hitchcock's Machine Tool Blue Book

MAY, 1931

TWENTY-SIXTH YEAR

THERE IS MORE PRODUCTION
BECAUSE OF HIGHER SPEED,
WITH LESS FATIGUE, SPOILED
WORK OR BROKEN TAPS.



Ettco

SENSITIVE-HIGH SPEED
TAPPING
ATTACHMENT

The smooth, sensitive action of the built in friction clutches passes on the deft touch of the skilled mechanic. The result is a positive REDUCED COST PER TAPPED HOLE.

5 SIZES—Up To 1" Taps

WE SEND THEM ON TRIAL

ETTCO TOOL CO.

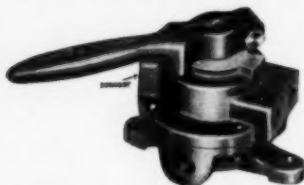
594 JOHNSON AVE., BROOKLYN, N.Y.

SEND FOR
LATEST
CIRCULAR

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

HANNIFIN

"PACK-LESS" AIR CONTROL VALVES



**Models "Y" and "P"
Hand Control Valves**

Furnished in three sizes—
with $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " I. P.
Connections.

HANNIFIN Valves are the result of 23 years of specialized experience in design and manufacture of air equipment. They combine simplicity of design, rugged construction and superior workmanship. In their design, packing has been eliminated, thus assuring a leak-proof valve with no maintenance expense.

Construction comprises a semi-steel body with an accurately machined seat through which air ports are bored. A heavy bronze disc controls direction of air flow. Faces of the disc and valve seat are ground and lapped, making a perfect seal.

*Write for Catalog illustrating Hannifin Air-
Operated Production Equipment.*

HANNIFIN MANUFACTURING CO.

621 So. Kolmar Ave.,

CHICAGO, ILL.



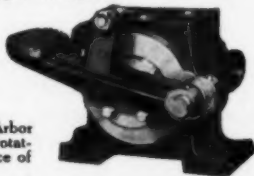
**Model FB "Pack-Less"
Air Control Valve
Disc Type**

Spring Return Foot Model,
simply and sturdily made of
semi-steel in 3 sizes— $\frac{3}{8}$ ", $\frac{1}{2}$ "
and $\frac{3}{4}$ ". 45° movement.

A "Pack-Less" valve same construction as
hand type shown above.

**Model FB "Pack-Less"
Air Control Valve
Rotary Disc Type**

For heavy duty foot control of Arbor
and Riveting Presses—large non-rotat-
ing cylinder. $\frac{3}{4}$ " size only—choice of
reducing bushings.



Hitchcock's Machine Tool Blue Book

**Selected
Circulation**

**25,500
Monthly**

MAY, 1931

TWENTY-SIXTH YEAR

To Manufacturers

Of Metal-Working Machinery

If you are hesitating about advertising your products, we suggest that you ask yourselves the following questions:

1. "Are there good reasons why metal-working plants should buy my machines?"
2. "What are those reasons?"
3. "How can buyers find them out unless I tell them?"

If the buyers do not know they cannot buy. That's a certainty.

But through the pages of this publication you can tell over 25,000 responsible buyers what you make and why they should buy it.

Send in your copy, or write for rates, and let's get going. You'll be glad you did.

Published By

Hitchcock Publishing Co.

508 S. Dearborn St.,

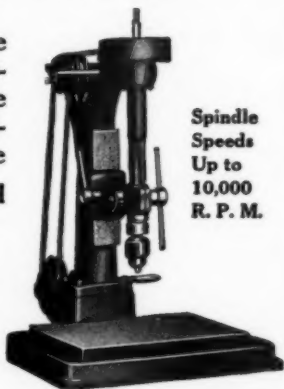
Chicago, Ill.

Consult the Classified Finding Index for your requirements

Don't Forget—

**Wood, Fibre, Rubber,
Paper, Mica, Bakelite**

as well as the
ordinary met-
als can be
drilled to ad-
vantage on the
**Leland-Gifford
Super-
High-Speed
Ball Bearing
Drilling
Machine**



**Spindle
Speeds
Up to
10,000
R. P. M.**

**Write us about this Drill to speed
up your drilling operations.**

Ask for Bulletin No. 502

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

**BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER**

AGENTS

Hendrie & Belthoff	Denver
F. E. Satterlee Company	Minneapolis
Smith Booth Usher Co.,	Los Angeles
Herberts-Moore Machinery Co.,	San Francisco
F. F. Barber Machinery Co.	Toronto

LELAND - GIFFORD



Over 4,000 Pieces Without A Chaser Grind

A 3 $\frac{5}{8}$ " NAMCO Die Head, with the New NAMCO Circular Chasers, operating on malleable iron castings at a surface speed of 75.9 surface feet per minute has already threaded over 4,000 pieces without having to grind the chasers. The thread is 3.198-18 U. S. and the lubricant used is soluble oil. This performance is in itself astonishing, but when you stop to realize that these NAMCO Circular Chasers have more than ten times as much chaser surface as ordinary hob type chasers, and can be ground at least fifty times, you begin to get into real production figures. Have you a copy of Bulletin TD-B? If not, we will mail one immediately upon your request.

The National Acme Co.

Cleveland, O.

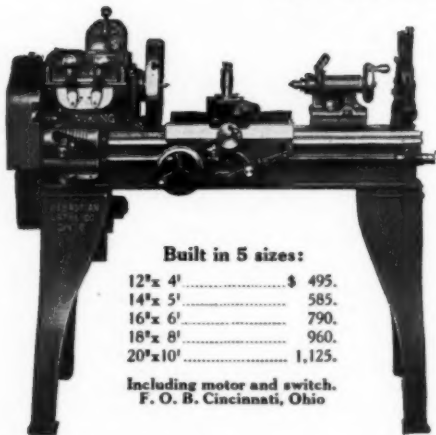
New York City



Windsor, Vt.

Detroit—Chicago

The New "VIKING" is here!



Built in 5 sizes:

12"x 4'	\$ 495.
14"x 5'	585.
16"x 6'	790.
18"x 8'	960.
20"x 10'	1,125.

Including motor and switch.
F. O. B. Cincinnati, Ohio

THE new "VIKING" Lathe is the choice of the shopman who knows *good* lathes, because its design includes many outstanding features, such as eight spindle speeds, silent chain motor drive, reverse in apron, etc.

In addition, it is exceptionally simple to operate.

The New "VIKING" Catalog is just off the press. A copy is *yours* for the asking.

THE SEBASTIAN LATHE CO.
2 CULVERT STREET, CINCINNATI, OHIO

See Monarch Lathes in Action!

WE have arranged a series of demonstrations on the 20" Monarch-Keller Form Turning Machine and the 13" Monarch Model "C" Tool Room Lathe at convenient points, as follows:

May 4th to 9th—Boston, Mass.
Salesroom of Lynd-Farquhar Company
326-330 Congress Street

May 16th to 23rd—Detroit, Mich.
Salesroom of Strong, Carlisle & Hammond Co.
2832 E. Grand Blvd.

May 25th, 26th 27th—Detroit, Mich.
University of Detroit
Engineering Laboratory

June 8th to 13th—Chicago, Ill.
Salesroom of Manning, Maxwell & Moore, Inc.
27 N. Jefferson Street

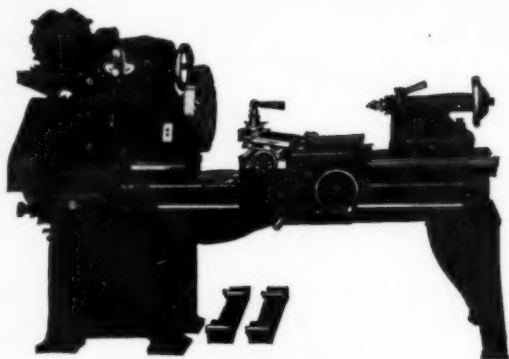
Have a Demonstration Made on YOUR Work

You are invited to attend any one or all of these demonstrations—and are urged to send a piece of work on which you would like to have a demonstration made. Please ship such blanks to any of the distributors listed above and forward blue print and any necessary specifications in advance, so that all details may be arranged.

Photo below shows interested visitors at our Cleveland Exposition (week of March 30th) where 152 visitors registered, representing 55 concerns.

The Monarch Machine Tool Co., Sidney, O.
New York Sales Office: 857 Graybar Bldg.





Newly Designed Removable Block Gap Lathe

2 sizes, 16/25' and 18/27' swing.

Any length Bed.

Belt or All Geared Head Motor Driven.

Especially suited for Repair Shops and Garages.

Removable Bridge made in 2 sections.

Standard Equipment includes

CABINET LEG under headstock

DOUBLE BACK GEARS

QUICK CHANGE GEAR BOX

CHASING DIAL

LEAD SCREW AND FEED ROD

DOUBLE BRIDGE BLOCKS

Also power cross feed, graduated compound rest and cross feed, steady rest, face and driver plates, tool post, centers, wrenches and double friction countershaft.

SMALL INVESTMENT. LOW COST OF UP-KEEP.

Write for "LN GAP" Descriptive Circular

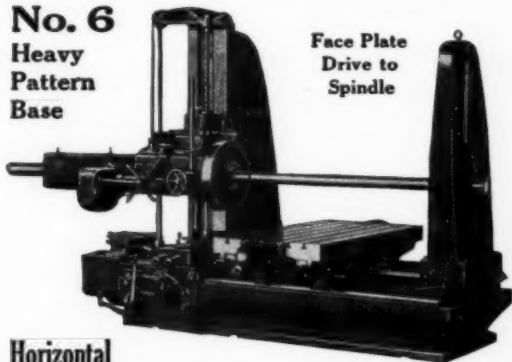
The Rahn-Larmon Co.

2941 Spring Grove Ave., Cincinnati, O.

The New Improved **DEFIANCE**

No. 6
Heavy
Pattern
Base

Face Plate
Drive to
Spindle



Horizontal

Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines, Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

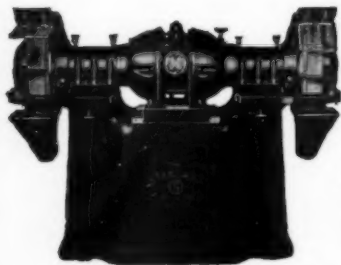
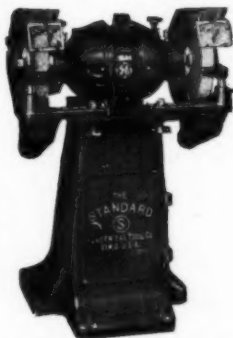
STANDARDS!

Worthy —

Sturdy

BALL BEARING GRINDERS

G. E. 40° motor and push button control. High grade nickel steel armature shaft. SKF ball bearings. Adjustable wheel guards — hinge door type, exhaust connections. Sizes 3, 5, 7½ and 10 H. P.



HEAVY DUTY GRINDERS

G. E. 40° motor and push button control. Four SKF ball bearings.

Nickel steel armature shaft. Adjustable guards. Made in 5, 7½ and 10 H. P. sizes.

New Catalog and Price List—Write Now

The Standard Electrical Tool Co.

1952 West 8th St.,

Cincinnati, Ohio

Standardize with Standard Tools

HAMMOND

GRINDERS & POLISHERS

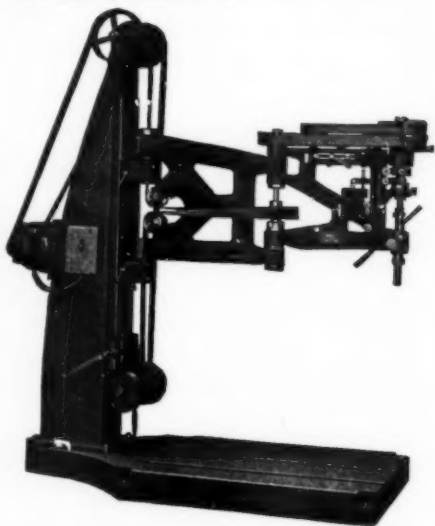
Modern to the Minute—
incorporating many features only
found in high-grade machine tools.

Ask for catalog 20



Hammond Machinery Builders
KALAMAZOO, MICHIGAN

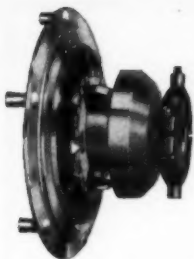
THE HAMMOND AUTOMATIC
Tapping Machines are designed
to rapidly and efficiently perform
drilling, tapping, stud, nut and screw
driving operations.



Drilling radius.....4' 0"
Capacity $\frac{3}{4}$ " drills, $\frac{5}{8}$ " taps, $\frac{1}{2}$ " studs

Write for full information

The Hammond Manufacturing Co.
7808 Kinsman Road, Cleveland, Ohio



Count the Round- abouts—

of the revolving entry way at Marshall Field
or Wanamaker's!

Day in and day out,—it plods its circular path,
never wearying, not once complaining.

And, so the Conway Clutch will carry on in
its dependable way, in a similar role of spin-
ning drudgery as the control of any one or all
of your machines—full power will be delivered
through it at all times, no stops for repairs, no
slipping, no dragging, no heating up. Just a
dogged, dependable, dutiful performance—in
and out—in and out, with a patience and
stamina inherent in its rugged construction.

And your machine commanded by the splen-
did Conway Clutch will maintain the produc-
tion curve month after month, year after year.

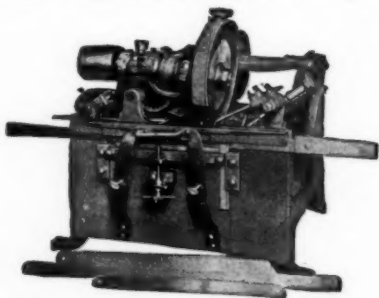
Simple, rugged, powerful—easy engagement,
instant release, centripetal action, drag free
idling, enclosure, balance, over power capacity
and long life.

"It's the last word in friction clutches" and, to
the plant engineer, an investment in maximum
production and minimum cost per finished
piece.

The Conway Clutch Co.
1541 Queen City Ave., Cincinnati, Ohio

A TWO CENT STAMP—

—AND the trouble of writing a short letter, is all that is needed to bring you The Wardwell Manufacturing Company's complete



catalog on automatic saw grinding machinery for hacks and bands. In it you will find a specific machine to handle your specific saw problem, that results in savings in saw purchases, better production, and proof that it will pay for itself. The cut shows the automatic grinder model 'H' for hacks and band saws.



THE WARDWELL MFG. CO.
3165 FULTON RD., CLEVELAND, OHIO

GRAND RAPIDS No. 1 SURFACE GRINDER



**A High Grade
Hand Feed**

**Precision
Machine**

**that will
do Your Small
Grinding Jobs**

**Quicker-Better
Cheaper**

*In many instances, a battery
of these small machines can
be used to better advantage
than a smaller battery of
larger automatics.*

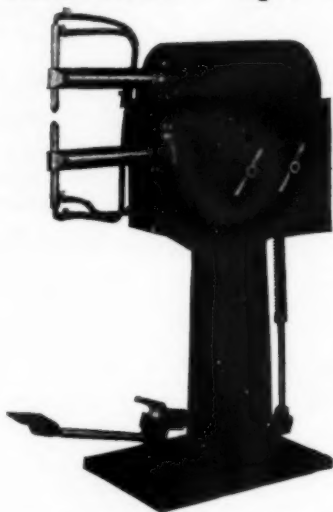
THE Grand Rapids No. 1 Surface Grinder handles economically the miscellaneous run of small surface grinding jobs that are continually coming up in the ordinary tool room. On many classes of work a competent operator will be able to exceed the production possibilities of anything in the automatic surface grinder line, except the latest type of hydraulic feed machines. Strongly built of the best materials and reasonably priced. *Write for the Descriptive Bulletin.*

Grinders for Every Purpose—Send for Catalog

**GAILMEYER AND
LIVINGSTON CO.**

342 Straight Ave. S. W., Grand Rapids, Mich.

Type A. C. "STANDARD" Spot Welder



**Positively the Lowest Priced Spot Welder
Built, Quality Considered**

**7½ K. V. A. 2" horns with water cooled points.
6" and 12" throat Swivel treadle
6 step regulation**

*Send samples or blue prints for quotation on special
equipment. We can save you money.*

**The Lenney Machine & Manufacturing Company
Warren, Ohio**

4

Buffing Speeds!



Pat. No.
1477052

LOWER costs! Bigger output per man! Better finished products! These and other big advantages are yours with *U. S. Multispeed Buffers and Polishers.*

You get these by means of the patented Gibbs V-Disc Transmission of GRAPHITIZED MICARTA. This drive provides four different wheel speeds from 2,000 to 3,000 r. p. m. And you get any of these speeds easily and quickly by means of the handy lever and foot pedal.

This drive shows highest efficiency in power transmission. It is free from slip or back lash. It's durable. Quiet. Easily accessible. Low in replacement cost. It is operated by a powerful A. C. motor. Ask your distributor for full particulars or write us direct today.

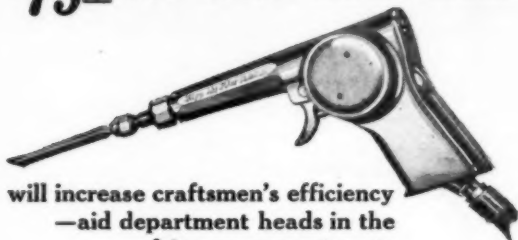


The United States Electrical Tool Co.

2461 W. Sixth St., Dept. D. Cincinnati, Ohio

Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

\$75⁰⁰ for these three tools



will increase craftsmen's efficiency
—aid department heads in the
drive on present costs

ONCE it was necessary that high priced craftsmen spend their time chipping, scraping rubbing, stoning and filing with hand tools, and emery paper—once—but that day is *gone*.

With the complete line of Kipp Air Tools—Grinder-Chipper-Filer—surface and internal grinding, chipping, filing, even in places far too small for the hand to enter, can be done with machine-like accuracy, speed and precision. Each was invented because there was no tool to do its work.

The cost of Kipp Air Tools is so low—their possibilities so great that few plants working in steel, other metals, wood, rubber, or ceramic material can afford to overlook them in the drive for lower costs ... especially when they are sent on free trial offer.

Think this over—for \$100.00 or less you can secure a complete set that, without exaggeration, has possibilities of saving thousands annually in lower cost and faster production of dies, tools, jigs, patterns and moulds. Check coupon below.

ORDER BLANK

MADISON - KIPP CORP.
217 Washeta Street,
Madison, Wis.

Send Kipp Air.....at
\$.....net 30 days,
postpaid. If it is not sat-
isfactory, we will return
invoice and tool on or
before the 10th day after
date of invoice. (Note:
if you prefer to use your
regular order form, please attach this coupon to it, and copy the above return
arrangement on your order for a complete record.)

CHECK MODEL DESIRED

	Air Pressures	Price in U.S.A.
<input type="checkbox"/> Filer	40-120 lbs.	500 to 5000 \$25.00
<input type="checkbox"/> Chipper	40-120 lbs.	6,000 25.00
Grinder Model		
<input type="checkbox"/> BB-L DM. ball bearing	30-50 lbs.	60,000 37.50
<input type="checkbox"/> BB-M	50-75 lbs.	60,000 37.50
<input type="checkbox"/> BB Double ball bearing	75-100 lbs.	60,000 37.50
<input type="checkbox"/> BB-100 DBL. ball bear.	100-120 lbs.	100,000 50.00
<input type="checkbox"/> AGL Single ball bearing	30-50 lbs.	40,000 25.00
<input type="checkbox"/> AG Single ball bearing	50-100 lbs.	40,000 25.00

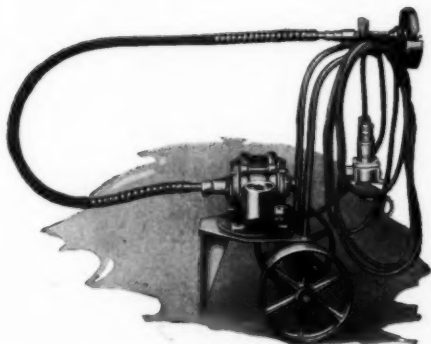
Ship to.....State.....

Address.....Signed.....

City.....Title.....

A Portable GRINDER

**which will withstand *continuous*
HARD GRINDING DUTY!**



1 H.P., 3 Phase, 220 or 440 volts. 3600 R.P.M. at 60 cycle. 40° C. Rise Constant Duty. Nine motor leads are brought out in switch box for ready connection to either 220 or 440 volts. Strong Flexible Shaft. Light Metallic Handle equipped with Standard Ball Bearings. Equipped with 8"x1" grinding wheel. Diameter of spindle at wheel, $\frac{5}{8}$ ". Net weight of Grinder, 155 lbs. Shipping weight, 200 lbs. Can be furnished in single phase 110 or 220 volts A.C. and 110 or 220 volts D.C.

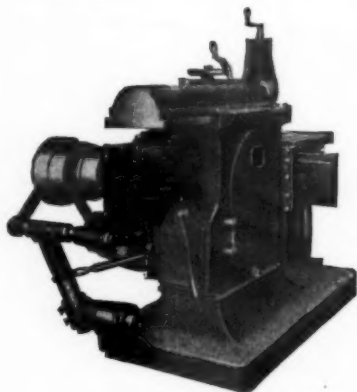
A Sales Representation Is Open in a Few Localities

STOODY COMPANY

MANUFACTURERS

WHITTIER, CALIFORNIA

The Cullman Shaper Drive

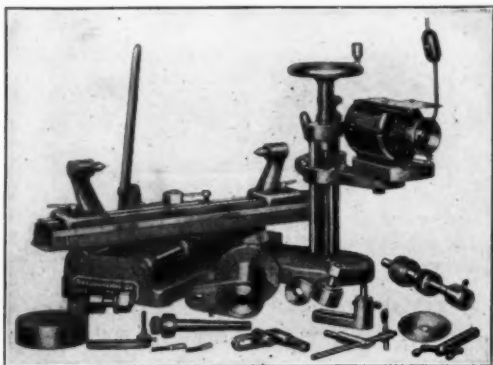


Motorize your cone pulley Shapers, Lathes and Milling Machines with Cullman Drives. Made in 1, 2, 3 and 5 H. P. sizes. Easy to install, bolts to your machine.

Cullman Wheel Company
1359 Altgeld St., Chicago, Ill.

Sprockets — Speed Reducers

A New Universal Tool Grinder—The No. 2



Just the Grinder You've Been Looking For!

SPEED UP your cutter grinding with a SURFACER No. 2 Universal Cutter Grinder. It is extremely simple to operate and is quickly set up for any cutting tool. It has a large capacity, centers are adjustable to $14\frac{1}{2}$ " ; cutters 6" diameter, 9" long; universal attachment, vertically, grinds saws and cutters to 16" diameter.

Your tool crib attendant can sharpen all types of cutting tools on this grinder, converting his non-productive time to tool maintenance. The grinder is portable and therefore takes up no valuable floor space.

The low cost of the No. 2 Cutter enables it to pay for itself in a very short time. Every shop can afford to install it as it sells for many times less than other grinders that do the same precision work. It will pay you to investigate the SURFACER No. 2 Grinder.

*If Your Machinery Dealer Cannot Supply You, Write Us
Today for Complete Information and Prices*

The Surfacer Manufacturing Co.
2454 Irving Park Blvd., CHICAGO, ILL.

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

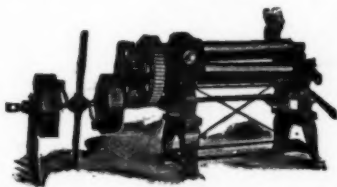
Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.

≡ BELOIT ≡

BENDING ROLLS



Initial Type
(as shown)

or

Pyramid
Type

**"We have not spent ONE CENT
in Replacement"**

That is the experience of one of the owners of a Beloit Bending Roll after four years of steady use. We'd like you to read his letter—here it is, in full—

"We wish to advise you that our No. 55 Combined Punch and Shear and No. 3-E Initial Type Bending Roll have given us great satisfaction in operation and since we have installed same we have not spent one cent in replacement. The Punch is used about three days a week and the Rolls are used every day."

Write for the BELOIT Catalog, including in addition to the Bending Rolls, complete descriptions of our Punches and Shears, both Hand and Power Types.

And that's not an isolated case, either. Here's an extract from another letter:

"The 3-E Rolls are still giving good service in our structural department. They have never given us an instant of trouble or delay, and this goes back some eight years."

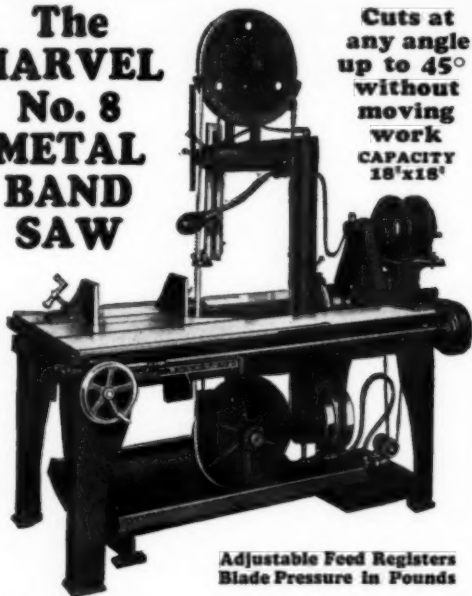
It will pay YOU to investigate the Beloit Bending Rolls!

HENDLEY & WHITEMORE CO.
100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

The MARVEL No. 8 METAL BAND SAW

**Cuts at
any angle
up to 45°
without
moving
work
CAPACITY
18'x18'**



**Adjustable Feed Registers
Blade Pressure in Pounds**

FULLY UNIVERSAL, simple to operate, always ready for any job from the smallest to the largest—The Marvel No. 8 Band Saw is a standard tool in hundreds of the best shops. It cuts off square or any angle, right or left, to 45 degrees, has a large, roomy bed or work table, three cutting speeds, quick acting vise, ball bearing band wheels, carriage and guide rollers. Handles a great variety of work and is unequalled in range, accuracy, speed and economy.

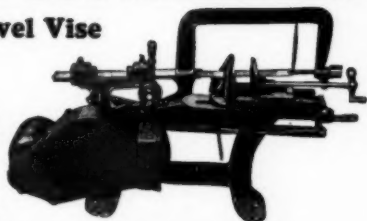
Write Us Today for Complete Details

ARMSTRONG - BLUM
341 N. Francisco Ave.,

The MARVEL No. 2 DRAW-CUT HACK SAW

with Swivel Vise

**A
Sturdy,
Depend-
able
Worker**



ADJUSTABLE STROKE

CAPACITY { **6"x6" on long stroke**
8"x8" on short stroke

A Complete Motor Driven Hack Saw at a very attractive price. It's a Strong, Durable, Dependable Saw, and can be furnished either with motor for power circuit for stationary use or with motor for lighting circuit so it can run from any light socket in your shop. Motor is connected with driving shaft by silent chain, sprockets, and intermediate cut gears enclosed in cast iron housing and guard and run in oil.

Write us for full details of this complete motor driven saw. Let us know the current of your power circuit or lighting circuit. Saw can also be furnished belt driven, if desired.

ASK ABOUT MARVEL
High-Speed-Edge Hack Saw Blades

MANUFACTURING CO.
CHICAGO, ILLINOIS

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

A Sensitive Drill For High Production

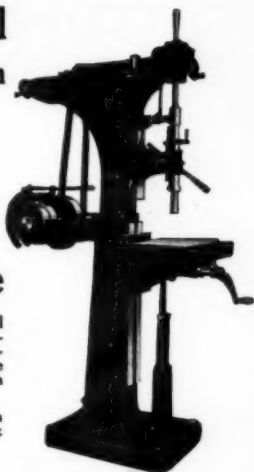
Avey

No. 2 High Duty Ball Bearing Drilling Machine

IN THIS sensitive, high speed drill you have simple, sturdy construction which assures accurate drilling on a production basis. Costs are naturally low due to rapid production and freedom from drill breakage.

This machine can be furnished in single spindle or multiples up to six spindles, floor or bench type.

What are your requirements?



BERJO VISE GRIPS ALL

View below (top plates removed) shows how the variable jaws conform to shape of work.



THIS unique device saves time on machine operations and eliminates costly holding fixtures where you have short runs.

No matter what shape the work is, the BERJO assumes the contour of the piece and grips it firmly.

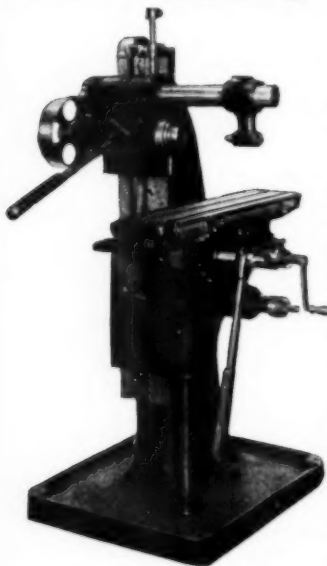
Complete descriptive matter at your request

The Avey Drilling Machine Co.
Cincinnati, Ohio

"SUPERIOR"

Hand Milling Machine

No. 1



WAS DESIGNED to meet the demand for a high grade well built machine to cover a great variety of work within the range of a hand miller.

CONSTRUCTION and WORKMANSHIP is of the very best possible. The head and knee are mounted on long narrow ways accurately fitted with adjustable taper gibs which insures rigidity and long life together with perfect alignment and ease of operation. Friction countershaft is built into the machine so it can be run directly from line shaft or from motor,

In a Class by Itself

THE SUPERIOR is not competitive with other Hand Millers which are now on the market, but is in a class by itself, as is proven by the large number already in use, and the many repeat orders coming from shops having used them for years.

Descriptive Literature Gladly Sent on Request

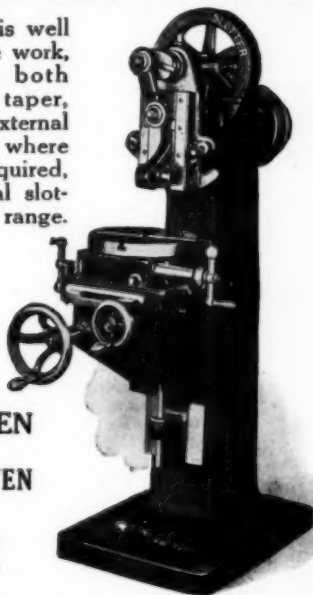
We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.
1920 Ferry Park, 1-1 1-1 Detroit, Mich.

STEVENS VERTICAL SLOTTER

ADJUSTABLE STROKE—0 TO 4 INCHES

This machine is well adapted to die work, key seating, both straight and taper, internal and external gear patterns where draught is required, and all vertical slotting within its range.



**BELT DRIVEN
OR
MOTOR DRIVEN**

**SEND FOR
CIRCULAR**

Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

**Repairs and Replacements on GARVIN Machines
of Our Manufacture**

JOHN B. STEVENS INC.
306 Hudson St. New York City



**-ELCO-
SCREWS**
REDUCE ASSEMBLY COSTS

MACHINE SCREWS
MACHINE SCREW NUTS
WOOD SCREWS
LAG SCREWS
CAP SCREWS
PIPE PLUGS

ELCO SCREWS

**- Synonymous for
Accurate Fit
Uniform High Quality
and Prompt Service
-always-**

Our Plating Department is equipped to apply all kinds of Finishes on Screws. The same quality prevails here as in all other ELCO Departments.

Immediate shipments made from complete stocks.

May We Serve You?

All inquiries receive prompt, intelligent attention.

Write for Samples and Prices

**ELCO TOOL & SCREW
CORPORATION**

1808 Broadway, ROCKFORD, ILLINOIS

"It Pays to Use Good Screws"

DRIVE SHORT SCREWS

At Lowest Possible Cost



The
Reynolds
No. 1
Special

The Only
Automatic
Magazine-Fed
Machine

That drives short
screws and those
with short bodies
and large heads

Just keep the hopper filled—
no handling of screws beyond
that—a boy or girl can operate
it.

For years Reynolds Automatic MAGAZINE-FED Screw Driving Machines have been driving screws of all kinds for up-to-date concerns everywhere, at savings of from 65 to 85%.

The No. 1 Special, shown above, handles screws with short bodies and large heads, magazing and driving screws from No. 4 to No. 10, up to $\frac{1}{2}$ " long, to center of a 14" circle. It will pay you, in dollars and cents, to investigate the savings the Reynolds can effect in your shop.

Drop us a line, giving dimensions over all of your work, length and gauge of screws used. We'll submit facts and figures showing how to reduce your costs.

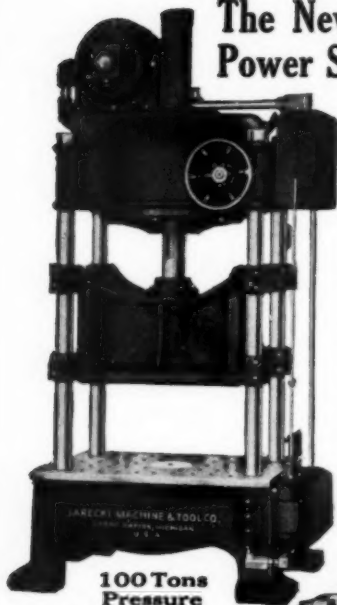
The Reynolds Machine Company
Dept. H. H. Massillon, Ohio

The New Type CC Power Screw Press

Speed Up Your Tool Room Work

with this powerful machine! Your tool maker requires no help in handling dies—push button type switch conveniently located enables operator to start, stop or reverse ram without taking eyes off his work. Rigid, powerful, delivers 100 tons pressure. Perfect alignment eliminates any tendency to nick or gouge dies—insuring perfect work. No wedging or prying.

Write for Details



**100 Tons
Pressure**

*Also Hand Screw Presses
25 and 80 Ton Pressures*

A Surface Grinder

that's accurate, powerful—runs without chatter. Both feeds have graduated dials. Equipped with latest improvements.

Details and Prices on request

**JARECKI MACHINE
AND TOOL CO.**

Department A

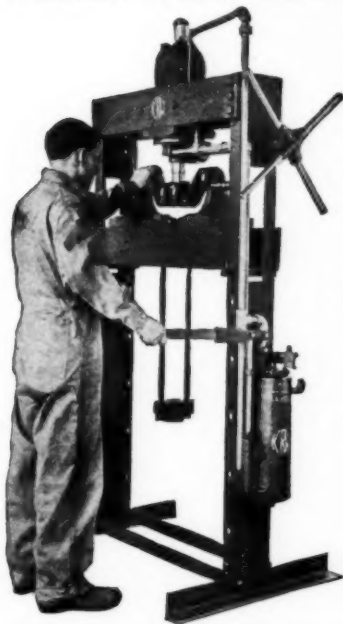
GRAND RAPIDS,

MICHIGAN



KRW Hydraulic and Sensitive ARBOR PRESS NEW 1931 MODEL

Many New Improvements for Perfection of Operation and
Convenience Gives You All Around Efficiency at Low Cost



A new double acting piston fills cylinder with oil as the ram is brought down by means of the hand wheel of unique design — sliding handles which pull out to the ends greatly increase the leverage.

Side members slotted to permit long bars to pass thru.

35 tons Capacity

Direct to You

\$125.00

F. O. B. Factory

Complete with all
attachments as shown

K. R. WILSON

10-14 Lock St., BUFFALO, N. Y., U. S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City

Bay State Handy Vise

For Tool and Die Work



**Speedy—
Accurate**

**Specially built for
Drill Presses and
Surface Grinders**

The narrow step jaw feature is only one of the many advantages over any other vise. It enables operator to drill holes closer to edge of work without interference. The step jaw also does away with the inconvenience of using parallels and the bother of removing chips and dirt underneath them. Telescopic screws for setting jaw give quick action. V section in jaw is ideal for holding round work. Open bottom gives projection clearance.

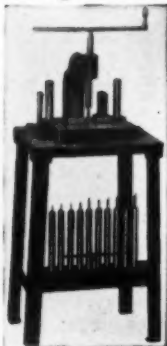


VICE PRICES:

Capacity 6" opening **\$30.**
Weight 14 lbs. . . .

Capacity 4" opening **\$25.**
Weight 7 lbs. . . .

Bay State Hand Tapper



**Rapidly Being Introduced In
Up-To-Date Tool and Die Rooms
Because . . .**

It cuts direct labor cost on hand-tapping 75%.

Makes quick, accurate tapping easy. Assures holes tapped at right angles without the aid of a square.

Does away almost entirely with tap breakage, spoiled work and consequent delays.

Does away with tap extensions. Spindle itself reaches down between projections.

Requires no setting up. You can't start wrong or get the tap out of alignment.

Operation actually simpler than tap wrench and vastly superior in ease of operation, speed and workmanship.

Send for descriptive circular

Bay State Tool & Machine Company
414 Albany St., **Springfield, Mass.**

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

**Are made in
three sizes,
with either
single or
double action**

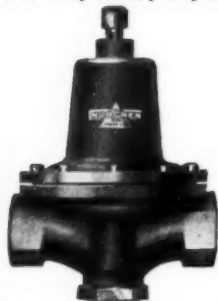
Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

**The Taylor & Fenn Co.
Hartford, Conn., U. S. A.**

Norgren Regulating and Reducing Valve

For Air, Steam, Oil, Water and Non-Corrosive Gases



A Revelation!

in Greater Volume
and
Closer Regulation

Simply designed; precision machined; exclusive features; all essential parts accessible without removal from line.

Styles and sizes for various secondary pressures from 0 to 125 lbs., with inlet pressures up to 225 lbs.

Send for New Catalog

Norgren Sight Feed Automatic Air Line Lubricator



The NORGREN SIGHT FEED AUTOMATIC AIR LINE LUBRICATOR not only provides a simple means of injecting lubricant into the air stream of pneumatically operated tools, but of even greater importance, the operator can SEE what amount of lubricant is entering the line.

It is adjustable to any demand by means of a needle valve and is entirely automatic in that it operates only when the air is in motion. There are no working parts.

You cannot *forget* to shut off the NORGREN Lubricator. You cannot *forget* to turn it on. It is easily filled and positive in action.

Manufactured by

CARL A. NORGREN CO., - Denver, Colorado
MANUFACTURERS OF Strainers, Blow-Valves, Blow-Guns, Air Chucks,
Engine Cleaners, and Patented Couplings for Industrial, Acetylene,
Service, Hi-Pressure Grease and Metal Lined Paint Hose.

Eastern Distributor—J. N. Fauver Co., 31 Brady St., Detroit, Mich.

BOX ^{LOAD}LIFTER TRADE MARK ELECTRIC HOIST



1 TON
to
20 TON
CAPACITY

**MOST RUGGED
AND
ECONOMICAL
HOIST BUILT**

**ALL STEEL
SUSPENSION
92 %
MECHANICAL
EFFICIENCY**



500 lb.
to
2000 lb.
CAPACITY

BOX TYPE ^{LOW}HEAD ^{ROOM} CRANE

LIFTS ITS LOAD WITHIN 18 IN. OF CEILING

**HEAVY DUTY ELECTRIC AND HAND TRAVELING CRANES
MADE IN EVERY SIZE AND TYPE FOR EVERY DUTY**

WRITE FOR CATALOG

**BOX CRANE & HOIST
CORPORATION**

**2234 EAST ONTARIO ST., PHILADELPHIA, PA.
REPRESENTATIVES IN PRINCIPAL CITIES.**

"That's the Machine I Want"

THE KELLERFLEX



Because

"—tools last longer with this machine. It is a quality machine throughout, yet moderately priced through the savings of quantity production.

Ball Bearings throughout the drive from motor to the handpiece. Adjustable V-belt transmits a powerful drive without vibration. The whole motor mounting is carefully balanced and swivels as easily as wiggling a finger. Four normal speeds with provision for a high speed attachment, giving up to 10,500 RPM."

KELLER MECHANICAL ENGINEERING CORP.

58A Washington Street,

Brooklyn, New York

Complete stock at Chicago and Brooklyn

SAFE VALVE COUPLINGS

Quick As Wink

The quickest--safest--most reliable hose couplings and valves on the market

3
YEARS
GUARANTEE

Positive control of the air anywhere between the compressor and tool. Push valve sleeve forward--air is on. Pull sleeve back--air is off. Cannot be uncoupled unless air is off. No leaks. No sticking. No trouble. All steel construction. Major parts of "Stainless." Stand abuse and operate under all conditions.

Time and Money savers wherever used. Ask for information and prices.



Quick As Wink
CUSHION
ABRASIVE
WHEELS

THE MODERN WAY
TO BUFF & POLISH

C. B. HUNT & SON
SALEM, OHIO

You Can't Break the Housing



We will replace it free if it breaks or distorts. We say so on every wrench. The guarantee shown below has no if's or and's about it.



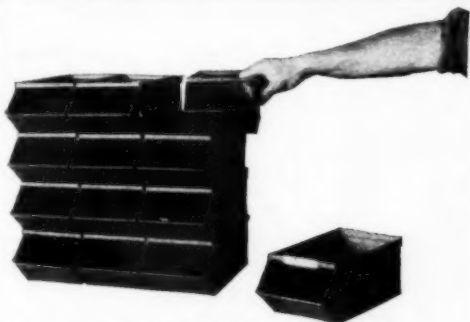
If your men want a pipe wrench to stand punishment, give them **RIDGIDS**. They can't warp or break the housing—even if they bend pipe with it. No more bother with broken housings or the expense of repairing them. They get also a *replaceable* heel jaw; full-floating hook jaw, with pipe scale; adjusting nut that turns easily in wide open housing; comfortable, stout I-beam handle with hang-up hole. And other features.

Arm your men with **RIDGID** Pipe Tools, and watch them turn out more work more efficiently.

The
Ridge Tool Company
Dept. BB, Elyria, Ohio

There are
RIDGID
Pipe Wrenches
Cutters, Vises
& Threaders

RIDGID
PIPE WRENCHES
VISES AND PIPE
CUTTERS **WRENCHES**



STACKBINS — are already Saving Their Cost Many Times Over

Can be used in various ways in any plant with a saving of time, as well as space.

For instance, on the assembly bench, these Bins make it possible to place more parts within convenient reach of the assembler, enabling him to do more work with less effort. Ideal for stockroom or toolcrib.

Made in four standard sizes, but can be furnished in sizes to meet your particular needs.

Bin No.	Width	Height	Length
1	5½ in.	4 in.	12 in.
2	7½ in.	5¼ in.	15 in.
3	9 in.	6½ in.	18¼ in.
4	12 in.	9½ in.	20 in.

STACKBIN CORPORATION

Pearl & Rice Streets,

Providence, R. I.

Stackbin Corporation
Pearl & Rice Streets
Providence, R. I.

Kindly send descriptive circular and quote prices on Stackbin equipment.

Name.....

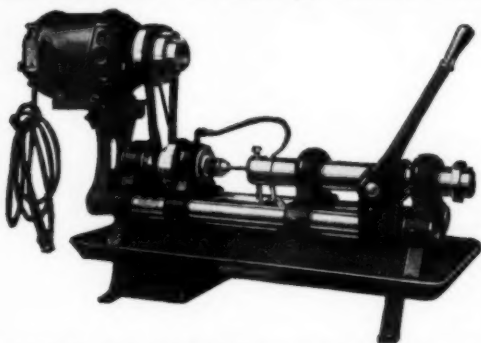
Title

Firm.....

Address

WHIRLWIND

Horizontal Drilling Machines



MAXIMUM Production at MINIMUM Cost

IN designing and building the WHIRLWIND Horizontal Drilling Machine our engineers had in mind increasing production drilling with a smaller investment for equipment and operating expense. That this has been accomplished has been proven in some of the largest production shops in the country.

Horizontal Drilling Increases Production 50 to 100% Over Other Methods

The Horizontal Construction of the WHIRLWIND prevents drill cuttings from loading up on the drill bushing and fixture and also permits faster loading. Work is automatically ejected on the back stroke of the feed lever—all of which increases production. Drill breakage and resharpening is reduced—lessening expense.

Tell us your drilling problems—we'll tell you how many pieces per hour the WHIRLWIND will drill—no obligation

WHIRLWIND PRODUCTS CO.
1737 Ludlow Ave., Indianapolis, Ind.

ARMSTRONG TOOL HOLDERS Are Used In
Over 96% of the Machine Shops and Tool Rooms



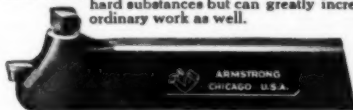
NEW

ARMSTRONG Tungsten-Carbide TOOL HOLDERS



It is now practical and economical for every shop to use Tungsten-Carbide for machining hard steel, sand-filled castings, glass, bakelite, hard rubber or soft brass. A few dollars worth of this remarkably hard metal on the tip of a steel bit can be used with ARMSTRONG TOOL HOLDERS for every operation of Lathes, Planers and Shapers.

The new ARMSTRONG Tungsten-Carbide TOOL HOLDERS are designed for use with Tungsten-Carbide Tipped Bits. They are extremely rigid, have an "undershot" form that gives support close to the point, hold bits at correct angle—without top rake. With these new tool holders and a Tungsten-Carbide tipped bit you can not only machine extremely hard substances but can greatly increase cutting speeds on ordinary work as well.



Write for informative circular that describes, gives sizes and prices.

ARMSTRONG BROS. TOOL CO.

"THE TOOL HOLDER PEOPLE"

308 N. Francisco Ave. Chicago, U. S. A.

LONDON BRANCH

ARMSTRONG BROS. TOOL CO. LTD. 35 Upper Thames St., London, E. C. 4, England

ARMSTRONG

TRADE MARK REG. IN U.S. PAT. OFFICE

No. 10 Ball Bearing Punch



Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ " Iron
Weight, 8½ lbs.

No. 8 Roller Bearing Punch



Operating handles will not become disengaged.

CAPACITY— $\frac{1}{4}$ " hole thru $\frac{1}{4}$ " iron. Weight, 16 lbs.

Made in 3 sizes: Nos. 7, 7½ and 8.

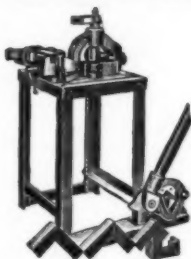
No. 20 Ball Bearing Punch



Capacity, $\frac{1}{2}$ -inch hole through $\frac{1}{2}$ -inch iron

Weight, Complete 20 lbs.

Angle Iron Combination No. 455



Shears, Notches and Bends a 2-inch by 2-inch by $\frac{1}{4}$ -inch Angle Iron in One Minute Flat.

No. 6 Slitting Shear Roller Bearing



Capacity $\frac{3}{8}$ " thickness. Throatless Drop Forged

Write for Catalog and Price List on Entire Line

Whitney Metal Tool Co.
95 Forbes Street, Rockford, Illinois

DELTA

V-BELT DRIVE

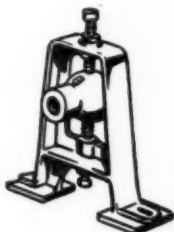
FOR FRACTIONAL HORSEPOWER

Scientifically designed from years of experience with the V-Belt drive.

Pulleys correctly grooved to fit V-Belts of $\frac{1}{2}$ " width, $\frac{11}{32}$ " thickness, 38° angle. Pulleys from 2" O.D. and up. Pulleys with $\frac{3}{4}$ " and $\frac{5}{8}$ " bore have $\frac{3}{16}$ " Keyway.

Self-aligning Hangers for $\frac{3}{4}$ " line shaft.

Sturdy flexible couplings delivering 1 H.P. at 1750 R.P.M.



Write for
FREE
descriptive
folder



DELTA SPECIALTY CO.

Dept. RB-2

3775 North Holton St., MILWAUKEE, WIS.

THE PRECISION UNIVERSAL TOOL HEAD

NEW!

For the first time in the history of the machine tool industry, radial adjustment of a tool-carrying cross slide in a rotating tool head is brought under absolute micrometric control of the operator, either in or out, while the tool head and machine spindle are rotating and the tool is cutting.

VERSATILE!

Will bore, face, counterbore, recess, turn, undercut and backface in miller, jig borer, horizontal boring mill or drill press, quickly and accurately with ordinary single point tool, all at one work setting. Micrometer slip collar graduated in half-thousandths, instantly set to zero.

INDISPENSABLE!

The clear-cut ability of this Tool Head to do what no tool has ever done before has rated it as "absolutely indispensable" in many of the finest plants in the country, while its instant readiness for any job, as well as its accuracy, simplicity and ruggedness have brought us repeat order after repeat order. Made in three sizes with maximum ranges of 0 to 6", 0 to 12", and 0 to 24", respectively. Shanks No. 2 to No. 6 Morse or No. 7 to No. 18 Brown & Sharpe.

We have just issued Bulletin 34, fully describing this Tool Head, which we shall be glad to send to any address.

THE PRECISION TOOL COMPANY
BRIDGEPORT, CONNECTICUT

Put Your Screws and Nuts In By Power with KOZA SPEE-D

Screw Drivers and Nut Setters

Ten Times Faster Than By Hand

Unexcelled for small quantity production. Tension adjustment sets screws or nuts any degree of tightness desired. Bit or wrench only rotates when pushed on. New style slot finder bits will not mar screws. Works in any drill press.

*Write for Complete Information and Also Ask About Our
Bench Assembly and Automatic Work Indexing Machines
for Quantity Production.*



Make the Repair Gang Earn Dividends



STOP making your machine tool repair men and millwrights waste your profits. Stop making them spend hours to tear down a machine to get out a broken bolt or part where your air or electric drills cannot get in.

KOZA RIGHT ANGLE DRILLS will save that time and do it by power—not by “brute force.” They eliminate the necessity of tearing down a machine to reach a broken bolt or part by drilling around the corner—at right angles.

DRILL BOLSTER PLATES RIGHT ON THE PRESS.

These tools may be used for pipe or bolt threading, grinding, keywaying or countersinking. There is a tool for every requirement—in every industry.

*Ask about Pee-Wee. For Die Casting and Bakelite Moulds.
He drills, grinds, keyways and saws in 1" holes.*

CHAS. A. KOZA

466 Augustine St.,

Rochester, N. Y.

The Zoerman Threading Tool

**The Most Practical and Compact
Tool Made for Cutting New Threads
or Re-Cutting Damaged Threads**

*Tested and Approved by Bureau of
Standards and accepted for Shop and
Field Use in the United States Army*

Always Ready for Use

The Zoerman is assembled at all times, ready for use instantly. No dies to misplace or lose—any size is there to use when you want it.

No Backing Off

It is not necessary to back off after the thread is cut with the Zoerman—this means longer life to your dies. Just unlatch it—and off it comes. No danger of stripping threads.

Cuts Tight or Loose Threads

This is easily done with the Zoerman because it has positive adjustments in 64ths, 32nds and 16ths of an inch.

No Guides Needed

Cuts down to shoulder without exertion. No guides necessary for re-cutting damaged threads—simply clamp tool on where thread is perfect and run off.

Set No. 1 Cuts from $\frac{1}{4}$ " to $\frac{3}{4}$ " } S. A. E. or U. S.
Set No. 2 Cuts from $\frac{1}{2}$ " to 1" } Std., Taps, Dies,
Set No. 3 Cuts from $\frac{1}{4}$ " to $\frac{3}{4}$ " } Tap Wrench

*Write for Illustrated Folder giving
Complete Details and Prices*

ZOERMAN-CLARK MFG. CO.
225 W. Huron St., Chicago, Ill.

NOC-OUT

Automatic Roll Feeds For Punch Presses Speed Production

Secure automatic feeding with its many advantages for your punch presses by installing the NOC-OUT Automatic Reversible Feed. This small unit automatically feeds metal, paper, brake lining or any other stock from coils in lengths from 0 to 30 inches per stroke of press.

FASTER — ACCURATE — ECONOMICAL

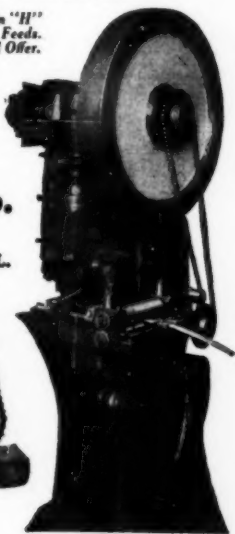
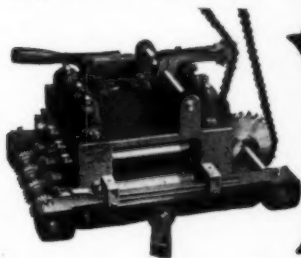
Labor is saved, production is increased and your men safeguarded with this feed. Automatic feeding means full speed production all day long —there are no "let downs" as it eliminates the human element whose energies are limited. Can be readily installed on any press.

We will gladly send you a copy of Bulletin "H" describing NOC-OUT Automatic Roll Feeds. Write for it and details of Our Free Trial Offer.

We design and build progressive and automatic dies for high speed production. Submit samples of your stamping for estimate.

Wittek Mfg. Co.


4309 W. 24th Place,
Dept. "H" CHICAGO, ILL.



Brocho Taper Reamer Drill

For drilling taper holes in solid metal in one operation to fit standard taper pins. Furnished in straight and taper shanks from No. 000 to No. 14, also in any sizes and tapers to blue prints. Made of best high speed steel, drills as quickly as an ordinary drill and makes nice smooth hole.

**Save
Time and
Money**



We are receiving repeat orders from all the most up-to-date firms in the country, machine tool builders, general machinery manufacturers, engine and electrical works, shipyards, etc.

Send us a trial order

A. C. Bellefleur & Son Co.

136 Garfield Ave.,

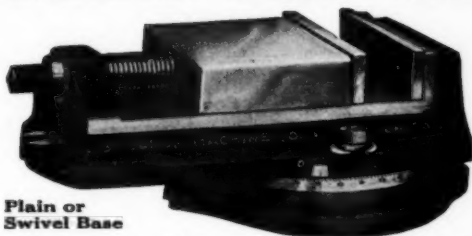
New London, Conn.

A thorough coverage is necessary to maximum advertising results. This is a truism.

For the greatest coverage of the richest markets for machine tools and shop equipment, concentrate your advertising in

**HITCHCOCK'S
MACHINE TOOL BLUE BOOK**

SHELDON MILLING MACHINE VISES



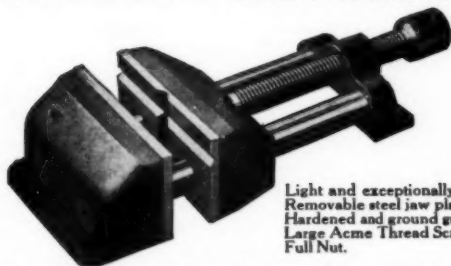
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3 1/2"	1 3/8"	2 1/2"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4 1/2"	1 7/8"	3 1/2"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6 1/2"	2"	4 1/2"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8 1/2"	2 1/2"	6 1/2"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

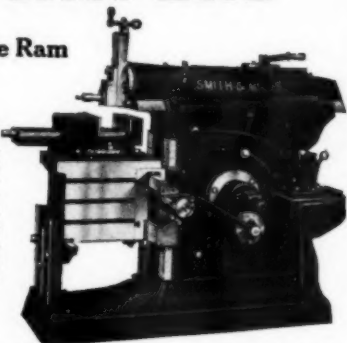
No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4 1/2"	1 1/2"	4"	15 lbs.	\$12.00
D-6	6 1/2"	1 3/4"	6"	35 lbs.	\$18.00
D-9	9"	2 1/4"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

SHAPERS

"V" Type Ram

12", 14", 16",
20", 25" Gear
Box single pul-
ley or motor
drive, also 16",
20", 25" B. G.
cone drive with
belt shifter. 32"
B. G. all geared
single pulley or
motor drive, all
sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

Improved Thompson Universal Grinder

Self-contained and motor driven, this standard Grinder combines efficient means for the rapid and accurate production of every grinding operation required in a machine shop.

All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

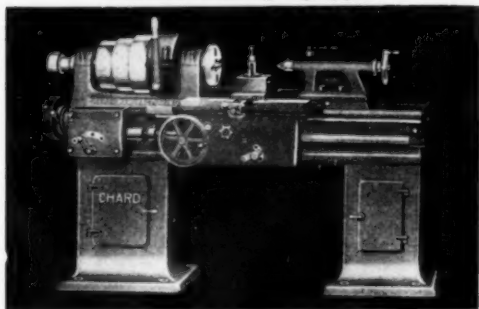
Capacity 12"x36"

**The Thompson
Grinder Co.**

1534 West Main St.,
SPRINGFIELD, OHIO



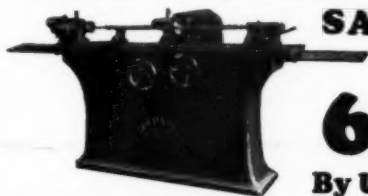
CHARD Manufacturing Type LATHE **Timken Bearing Equipped**



Start and stop lever on headstock—inverted dovetail on carriage for cross-slide—automatic stop to carriage—large diameter feed rod—double wall apron.

Write for Complete Information

Western Machine Tool Works, Holland, Mich.



**SAVINGS
OF
65%**

By Using The

COLONIAL Broach Sharpener

Actual shop figures show it costs 65% more to sharpen broaches on ordinary grinding equipment than on a COLONIAL. Why bear this extra expense? Specially designed to sharpen broaches, the COLONIAL finishes the teeth and difficult under-cut with great accuracy. Quickly pays for itself—improves the quality of your work.

Write for Complete Details Today

COLONIAL BROACH COMPANY

147 Jos. Campau Ave.,

Detroit, Mich.

ATLAS

Illustrated is our No. 55 Power Press adaptable to production work. With a ram travel of 27 feet per minute it has a capacity of 10 tons.

Write for catalog giving detailed description of this and other types.

ATLAS PRESS CO.
KALAMAZOO, MICH.



For Your **RIVETING**

Linley Rotary RIVET SPINNERS

**Cover a wide field of riveting.
Simple in design but—
Rigid and powerful.
Made in 15 Models.**

**Get the full details before buying
a riveter**

**WE ALSO MANUFACTURE
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Established 1883

Illustration shows
No. 5 Press
12 tons pressure



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Townsend Centrifugal Multi-Blow Riveters

THE ONLY MACHINE THAT
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NUMEROUS TYPES FOR ALL
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Round and Flat heads, hollow and cheek rivets
from .008" to $\frac{5}{16}$ " without distortion or breaking
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Guaranteed rapid accurate cutting of regular or irregular shapes from inside of large sheets as well as outside.

Edges true, square, and so smooth that file finishing is unnecessary. Foot control leaves both hands to guide work.



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14 gauge 30" throat bench type,
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Perfect circle attachment for cutting $1\frac{1}{2}$ " O. D. to 36" O. D. circular blanks from large sheets, standard equipment on all machines.

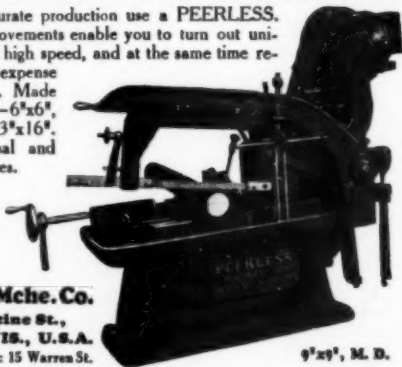
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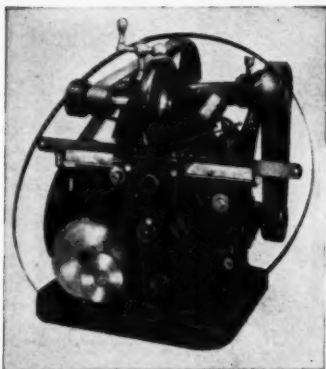
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Power Hack Saw—Metal and Wood Cutting



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We also will sharpen your high-speed power hack saw blades with 10 teeth per inch and coarser, at fifty cents each, regardless of size, in quantities of twelve or more.

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Something to Move?—



**Heavy? Awkward?
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That's when you need—and appreciate—the

**"CANTON" Portable
Crane, Hoist and Truck**

It will reach into otherwise inaccessible places, pick up any bulky, unwieldy object weighing up to 6000 lbs. with ease, and transport it from one end of the shop to the other. *One man* can operate it—no need to call 6 to 10 men from their work to risk torn ligaments. Safety Friction Load Brake can be added to new or old 'Cantons' at small extra cost.

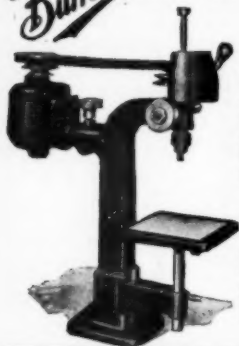
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shown in Booklet E-8*

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CANTON, OHIO

New York Office: Carnegie Hall, 154 West 57th Street

"Buffalo" 10" Heavy Duty Drill



Special Features

"V" Belt Drive—3 speeds,
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—Ball Bearings "repulsion induction" type of motor—3½ inch travel of spindle—snap switch built into motor—quick return spindle—cord and plug furnished.

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No. 1 Automatic Drill



It's fast and it's accurate—a really exceptional drill that has earned the enthusiastic endorsement of all users on work up to ½". For individual use or in "gangs" of six and more, hand feed or automatic. Counterbalanced spindle running through a large bearing on which is mounted the top cone. Drives through worm gears from ¼ H. P. motor mounted on special base. Interchangeable parts.

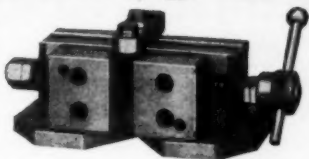
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"JOHN'S" Universal Drill Jigs

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Winterhoff MOTOR DRIVEN Portable Tools



No. 0 JUNIOR DRILL.
0 to $\frac{1}{8}$ " Capacity

10 $\frac{1}{2}$ " Sensitive BENCH DRILL

For Economical, Low Cost
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Are Most Convincing

Send us samples of your most difficult work, in close corners or out-of-the-way places, let us rivet them on the—

Grant Rotary Riveter

—and we will return them, with time and cost estimate.

The GRANT produces highly polished heads, without hammer or tool marks. Speed: a rivet a second. May be operated by unskilled labor—and it's *noiseless*.

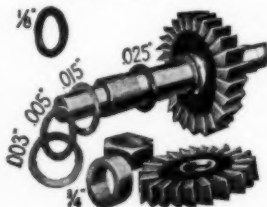
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Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

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Other thicknesses up to 3.000" made to order, with keyways if so ordered.

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New Grinder and Polisher In One Machine

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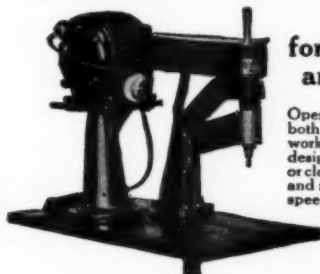
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Machine Tool Builders for 25 Years

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The VIM Bench Machine



Type "C" for Screw Driving and Nut Setting

Operated by foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired. We manufacture *five different types*, for all purposes of screw driving and nut setting.

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VIM ELECTRIC TOOL CO.
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CHAIN DRIVES

FROM STOCK!

ROLLER AND INVERTED
TOOTH TYPES UP TO
100 HORSEPOWER

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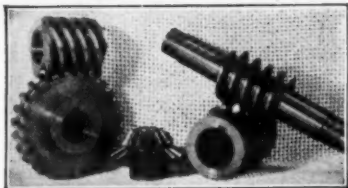


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Pumps are designed to
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An outside
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Equipped
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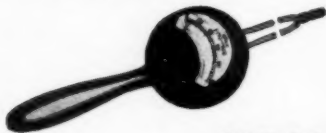
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Formica
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**The RIGHT Gearing
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OUR Service Department is always ready to co-operate with your engineers in meeting your gear problems. With a background of over twenty years of experience in solving gear problems of all kinds, the department is often able to render invaluable assistance

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MORE UNIFORM POINTING *with the* **ECONOMY Type "P"** **Semi-Automatic Pointing Machine**

Pointing of bolts, studs or rods becomes entirely automatic with this new Economy machine except for inserting and removing of blanks. No separate operation is required to bring the pointing head against the bolt.

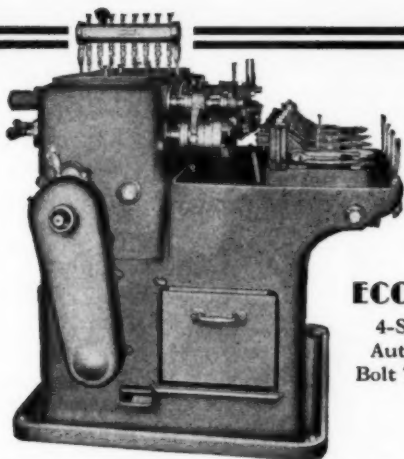
Pieces are gripped on the round, pointed, and released automatically at rates from 1500 to 2500 pieces per hour. Will handle work from $\frac{1}{4}$ " to $\frac{3}{4}$ " in diameter, $5\frac{1}{2}$ " or more in length.

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**No
Foot Levers**

**1500-2500 pieces
per hour**





ECONOMY

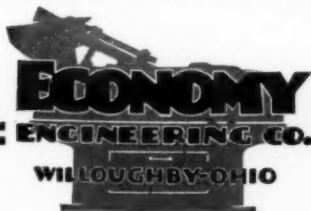
**4-Spindle
Automatic
Bolt Threader**

SPEEDIER BOLT THREADING

Four spindles, operating alternately, make possible the high production records which have been set with this Economy machine. Accurate timing of the spindle movements allow just sufficient time for operator to remove threaded piece and insert blank.

Threads bolts, studs or rods, cutting any standard length of thread. Handles diameters from $\frac{1}{4}$ " to $\frac{3}{4}$ " and lengths of 6" or longer.

Write for ECONOMY catalog giving full details of this and other similarly-cost-cutting machines.





Type M5A— $\frac{1}{2}$ H. P.



FULL BALL BEARING MACHINE

$\frac{1}{3}$ H.P.—Three Speeds

Other Types In

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And

Three Speed
Horizontal Types

$\frac{1}{8}$ to 2 H. P.

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TRADE MARK

HEAVY DUTY—HIGH SPEED Die Sinking Machines

Light weight with ABUNDANT POWER

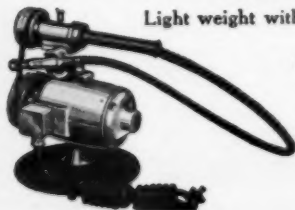
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THE MALL METHOD

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Speed ranges 300 to
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**Speeds 660 to
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PRECISION

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LIVE CENTERS

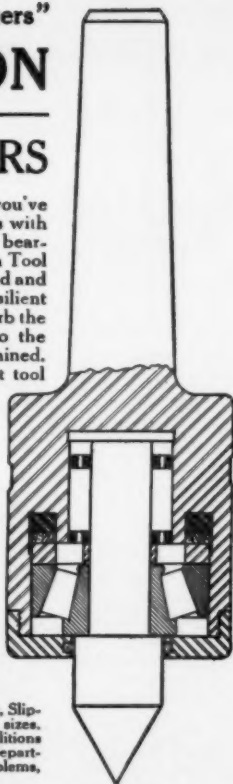
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"Cost per Hole!"

The only sound basis upon which reamers should be bought is "How much will they cost per hole reamed during their useful life?"

Peerless High Speed Reamers, for production reaming, stand without a peer for the maximum number of holes per reamer, and most economical cost-per-hole reamed.

If you are interested in this modern, scientific way of buying reamers, ask us to send you Performance Digests Nos. 33, 54, 55, 64, 78, 84, 85 and 86, together with complete instruction forms for making a comprehensive reamer test in your own shop.

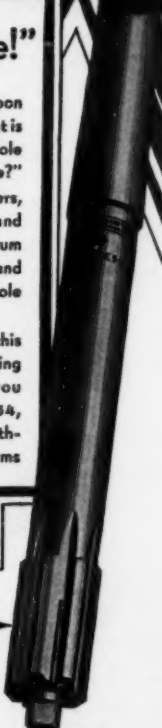


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LeBlond precision, accuracy and efficiency in the Regal make it a valuable tool for light manufacturing, maintenance and repair work.

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The Regal carries the LeBlond guarantee, and is subjected to the LeBlond precision tests. It is made in five sizes, 10" to 18", and prices range from \$388.00 to \$947.00. A compact self-contained unit with moving parts enclosed. Mail the coupon for complete details.

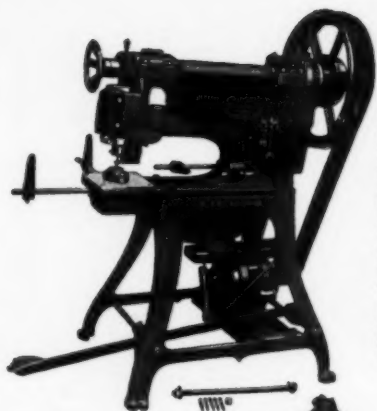
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Ball Bearing, accurately designed square slide built like a Punch Press for irregular shape dies. Easily operated balanced lever can be moved to the job with ease, saves time, one man machine, capacity $\frac{1}{4}$ " in $\frac{1}{4}$ " iron.



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Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

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Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

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Saves stock—width of cut less than $\frac{3}{64}$ "—blade .025" thick rigidly supported in six ball bearings.

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A Saw for Production, Maintenance and General Service

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The patented "gear cover" of the STANDARD Dial Indicator gives the mechanism double protection from dust, grit and moisture insuring *smooth action, accuracy and long life.* The large figures on the dial, free of shadows and with distinct graduations make easy reading.

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$1\frac{1}{2}$	60.00	5	140.00
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Complete with Push
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1-Ton Capacity - - Price \$300.00

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We are also Manufacturers of
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from 1-ton to 10-tons.

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For Flat
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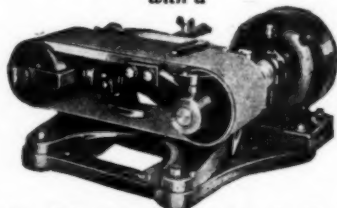


8 Sizes

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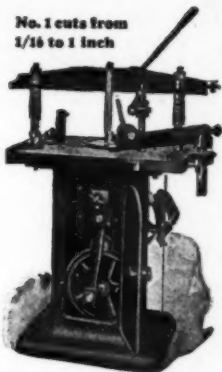


Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

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No. 1 cuts from
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The HANDNIB Saves
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Get price on our complete line of hand-operated nibbling tools. You will save original cost of tool many times over.



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Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

PRICE \$40

Extra Punches, 20 cents each; extra dies, 30 cents.

Capacity $\frac{1}{8}$ " holes through $\frac{3}{16}$ " steel; $\frac{1}{32}$ " through $\frac{1}{4}$ " steel. Punches and dies in stock from $\frac{1}{8}$ " to $\frac{1}{2}$ ".

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enable you to drill several parts (right and left hand) in the same jig. Extra rapid clamping and releasing. Accurate, time and labor saving. Write for complete information.

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A U. S. Multiple Spindle Drill Head transforms a single-spindle drill into a multiple spindle.

YOU CAN drill two or more holes with the same speeds and feeds you use for drilling one.

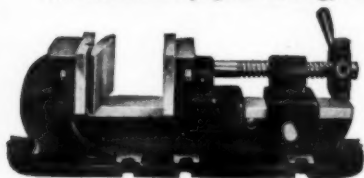
Special Heads **Made to Order**

THEY ALL have patented double adjustment, which permits drilling in any pattern. *Writing us incurs no obligation.*

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With Automatic, Quick-Acting, Powerful Grip



*Holds
Irregular
Pieces
Firmly*

The jaws are made of steel, hardened and ground, with horizontal and vertical "V" grooves. The independent swivel jaw holds taper and irregular work with a bull-dog grip. Its quick action, powerful grip and adaptability make it *the most efficient vise on the market*. Made in three sizes. Write today for folder, picturing its use in drilling and milling operations.

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**Plain or Ball Bearing
Belt or Motor Drive**

Sigourney Sensitive Drills are *quality products*, extremely sensitive, accurate and durable, with all parts interchangeable.

The illustration shows a Sigourney ball bearing, high speed drill press, made with one to four spindles, which operates up to 5000 R. P. M. The ball bearings are self-aligning, in double row.

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Hartford, Conn., U. S. A.

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Style
"E"
High
Speed
Tapper



For only a few dollars, a "PROCONIER" reversible tapping head converts your drill press into a sensitive tapping machine.

Our brand new cork clutch reversible tapper (illustrated), taps perfect holes at 1 to 2000 R. P. M. or better.

Capacity 0 to 1/2": Price only \$45.00

"Pro" tappers frequently tap 1/4 to 1/2 million holes before even the clutch is replaced.

Here's all the "Pro" steel dog clutch tappers cost complete with our new style tap holder:

No. 1—1/4"	Capacity; Safety	\$28.00; Positive	\$22.00
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This "Type B" Clutch is simply constructed, having but three main parts besides the operating cam. It is powerful and efficient. The low cost and upkeep make it commendable for a large variety of applications.

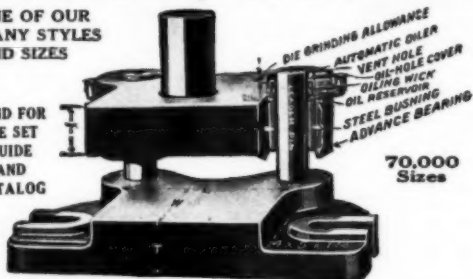
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MANY STYLES
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70,000
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These machines *easily* save from 30% to 60% on sawing, filing and lapping dies, templates, gages, cams, cutters, experimental and exact production work. Seldom idle, the small cost of these machines is quickly absorbed by their many time and labor saving economies. Made in nine sizes for materials up to 3" thick.

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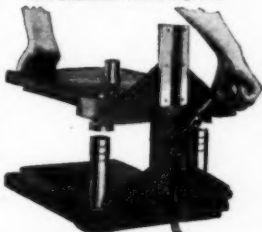
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SUPERIOR DIE SETS are furnished with center punch marks, an exclusive feature assuring accuracy, avoiding costly slipups, saving time and material. Also the only standard die set equipment with patented oil groove Leader Pins. All styles and sizes in stock.

Write for Complete Details

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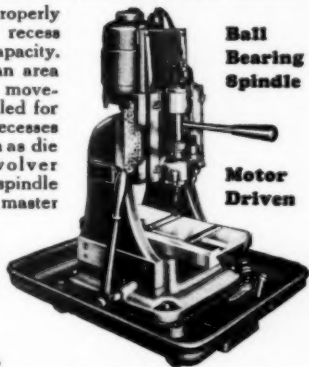
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RIGIDLY built and properly balanced for all recess work up to its capacity. Cutter spindle covers an area of $1\frac{3}{4} \times 4$ ", has vertical movement of $1\frac{3}{4}$ ". Unexcelled for producing duplicate recesses in blocks or plates such as die blanks, gun and revolver plates, etc. Cutter spindle furnished for cutting master plates.

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TOOL CO.**

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**Ball
Bearing
Spindle**

**Motor
Driven**

THE WILDER Interchangeable COUNTERBORE

**Change Cutting
Tools While
Machine is
in Opera-
tion**



YES, it's possible with the new WILDER Quick Change feature. To remove or install the cutting tool all you do is lift up the knurled chuck. This releases the lock driving plunger allowing the cutting tool to drop out or be easily installed. Use a WILDER and note the increase in output per grind.

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and Prices*

THE WILDER TOOL CO.
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The patented, protruding under-support, equipped with unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70%, with a corresponding increase in cutter economy. Write for details.

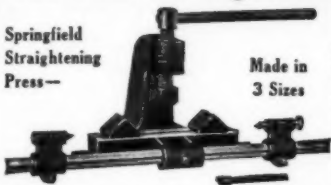
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SPRINGFIELD, OHIO.

The Western Tool & Mfg. Co.
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Made in
3 Sizes

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The arrangement of the Springfield makes it the ideal tool for straightening any length of rough or finished work—truing sprung tools—or testing and balancing cams, crank shafts, etc. Placed on the bench it saves the operator's time by eliminating waste steps, and makes for quicker handling of the work.

Let us send you a folder illustrating its many uses

The Springfield Machine Tool Company

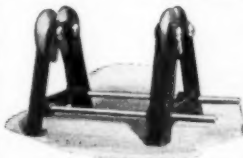
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McCHESNEY No.2 Bench and Drill Press Combination VISE

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Designed for use on flat surfaces such as magnetic chucks, drill press tables, etc., or it may be securely fastened to a work bench or other convenient object at any desired angle with the jaws either facing or away from the workman, by attaching the Interlocking Clamp as illustrated.

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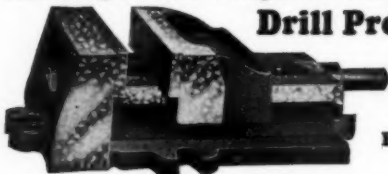
Width of Jaws 2 Inches	Depth of Jaws 1 ³ / ₁₆ Inches	Jaws Open 1 ¹ / ₈ Inches	Weight 1 ³ / ₄ Pounds
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With
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The Walton Tap Extractor

This handy tool has steel fingers which back out the tap *without injuring the threads*. It will save you many hours in the course of a year—paying for itself over and over again. Made in three and four-flute styles.

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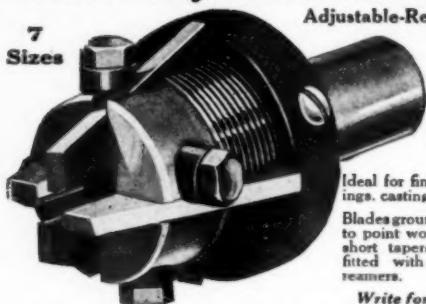
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Adjustable-Replaceable
Blades



7
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Ideal for finishing forgings, castings, etc.

Blades ground any angle to point work and turn short tapers. Can be fitted with drills and reamers.

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Simple—Inexpensive—Reliable

Any inaccuracy down to .001" can be instantly detected. Adjustable over a wide range—from No. 0 to No. 14 taper.

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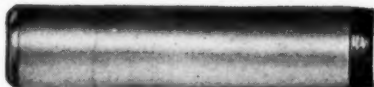
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Nicholson & Co., W. H., Wilkes-Barre, Pa.

Arbor Presses, Air Operated
Tomkins-Johnson Co., Jackson, Mich.

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National Acme Co., Cleveland, Ohio

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Wildor Tool Co., Greenfield, Mass.

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Sundstrand Machine Tool Co., Rockford, Ill.

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Downs, Mass.

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Armstrong-Blum Mfg. Co., 341 N. Francisco
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Porter-Cable-Hutchinson Corp., Syracuse,
N. Y.

Wells Mfg. Corp., Three Rivers, Mich.

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Buffalo Forge Co., Buffalo, N. Y.

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Hendley & Whittemore Co., Beloit, Wis.
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U. S. Electrical Tool Co., Cincinnati, O.
Vin Electric Tool Co., 149 Broadway, N. Y.

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Superior Tool & Die Co., Milwaukee, Wis.

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Keller Mach. Eng. Corp., 68A Washington
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Strand Co., N. A., 5001 N. Lincoln St., Chgo.
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Burke Machine Tool Co., Cincinnati, Ohio
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

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Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Oesterlein Machine Co., Cincinnati, Ohio
Sigourney Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Close Quarter

Koss, Chas. A., Philadelphia, Pa.

Drills, Right Angle

Koss, Chas. A., Rochester, N. Y.
U. S. Electrical Tool Co., Cincinnati, Ohio

Drills, Taper Reamer

Bellefleur & Son Co., A. C., New London, Conn.

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Drive Screws

Elico Tool & Screw Corp., Rockford, Ill.

Electrical Instruments

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

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Tomkins-Johnson Co., Jackson, Mich.

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Schwerdtle Stamp Co., Bridgeport, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

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Wardwell Mfg. Co., Cleveland, O.

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Flexible Shaft Machinery

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Keller Mech. Eng. Corp., 154 Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
U. S. Electrical Tool Co., Cincinnati, Ohio

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Buffalo Forge Co., Buffalo, N. Y.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

Western Tool & Mfg. Co., Springfield, O.

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Gages, Pin, Plug, Ring and Snap

American Tool Works, Inc., Hartford, Conn.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Special

Standard Gage Co., Poughkeepsie, N. Y.

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Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago

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Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Crofoot Gear Corp., C.E., So. Easton, Mass.
James Mfg. Co., D. O., 1130 W. Monroe St., Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

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Gears, Rawhide, Bakelite, Fabrolite

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James Mfg. Co., D. O., 1130 W. Monroe St., Chicago

Grinders, Air

Madison-Kipp Corporation, Madison, Wis.

Grinders, Right Angle

Koss, Chas. A., Rochester, N. Y.

Grinding Machines, Angle Plate

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Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids, Mich.
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Porter-Cable-Hutchinson Corp., Syracuse, New York
Wells Sales Corp., 96 Warren St., New York

Grinding Machines, Bench

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Steady Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Mchs., Combination Buffer

Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Steady Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Cutter, Reamer and Tool

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jaracki Mch. & T. Co., Grand Rapids, Mich.
LeBlond Mch. Tool Co., N. E., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Oesterlein Machine Co., Cincinnati, Ohio
Oliver Instrument Co., Adrian, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Stevens Inc., John B., 806 Hudson Street, New York
Surfacer Mfg. Co., 3454 Irving Park Blvd., Chicago
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Jaracki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Classified Finding Index

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Disc

Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Gardner Machine Co., Beloit, Wis.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Porter Cable-Hutchinson Corp., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Drill

Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Oliver Instrument Co., Adrian, Mich.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, External

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Floor

Bay State Tool & Machine Co., Springfield, Mass.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Flexible Shaft

Bay State Tool & Machine Co., Springfield, Mass.
Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Stoody Company, Whittier, Calif.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Hob

Scherr Co., Geo., 128 Lafayette, New York

Grinding Machines, Internal

Mall Tool Co., 8385 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Palmer-Edwards Co., Flint, Mich.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Center Electric

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Lathe Electric

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Portable Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Keller Mch. Eng. Co., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Porter-Cable-Hutchinson Corp., Syracuse, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stoody Company, Whittier, Calif.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Surface

Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Stevens Inc., John B., 306 Hudson Street, New York
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tap

Bay State Tool & Machine Co., Springfield, Mass.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Oliver Instrument Co., Adrian, Mich.

Grinding Machines, Tool

Bay State Tool & Machine Co., Springfield, Mass.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Oesterlein Machine Co., Cincinnati, Ohio
Standard Electrical Tool Co., Cincinnati, O.
Surfacer Mfg. Co., 2454 Irving Park Blvd., Chicago
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tool Post

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Universal

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Surfacer Mfg. Co., 2454 Irving Park Blvd., Chicago
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Hack Saw Blades

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hoists, Electric

Box Crane & Hoist Corp., Philadelphia, Pa.
Browning & Co., Inc., Victor R., Cleveland, Ohio

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio
Hagen, H. J., 109 Lafayette St., New York

Hollow Mills

Wilder Tool Co., Greenfield, Mass.

Hose Couplings

Hunt & Son, C. B., Salem, Ohio

Index Centers, Single and Multi Spdl.

Stevens Inc., John D., 306 Hudson Street, New York

Indicators, Dial

Standard Gage Co., Poughkeepsie, N. Y.

Classified Finding Index

Jigs and Fixtures

American Tool Works, Inc., Hartford, Conn.
 Bay State Tool & Machine Co., Springfield, Mass.
 Elco Tool & Screw Corp., Rockford, Ill.
 Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.
 Hartford Special Mch. Co., Hartford, Conn.
 Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
 Siewek Tool Co., Detroit, Mich.

Keyseating Machines

Davis Keyseater Co., Rochester, N. Y.

Lag Screws

Elco Tool & Screw Corp., Rockford, Ill.

Lathe Drives

Culman Wheel Co., 1359 Altgeld St., Chgo.

Lathes, Automatic

Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Bench

Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago

Lathes, Engine

Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Monarch Machine Tool Co., Sidney, Ohio

Porter-Cable-Hutchinson Corp., Syracuse, N. Y.

Rahn-Larson Co., Cincinnati, Ohio

Sebastian Lathe Co., Cincinnati, Ohio

Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Rahn-Larson Co., Cincinnati, O.

Lathes, Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Hand

Stevens Inc., John B., 306 Hudson Street, New York

Lathes, Hydraulic Automatic

Monarch Machine Tool Co., Sidney, Ohio

Lathes, Manufacturing

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Monarch Machine Tool Co., Sidney, Ohio

Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Polishing and Buffing

Hammond Mch. Builders, Inc., Kalamazoo, Mich.

Lathes, Precision

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Monarch Machine Tool Co., Sidney, Ohio

Wade Tool Co., Waltham, Mass.

Lathes, Short Bed

Porter-Cable-Hutchinson Corp., Syracuse, N. Y.

Lathes, Tool Room

LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Monarch Machine Tool Co., Sidney, Ohio

Lathes, Turret

Monarch Machine Tool Co., Sidney, O.

Lathes, Wood Turning

Delta Specialty Co., Milwaukee, Wis.

Lubricator, Automatic

Norgren Co., Carl, A., Denver, Colo.

Lubricators, Engine

Madison-Kipp Corporation, Madison, Wis.

Lubricators, Machine Tool

Madison-Kipp Corporation, Madison, Wis.

Mandrels, Expanding

Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.
 Nicholson & Co., W. H., Wilkes-Barre, Pa.
 Western Tool & Mfg. Co., Springfield, O.

Machine Screws

Elco Tool & Screw Corp., Rockford, Ill.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Millers, Bench

Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago

Millers, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Porter-Cable-Hutchinson Corp., Syracuse, N. Y.
 Stevens Inc., John B., 306 Hudson Street, New York
 Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Automatic

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio
 Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
 Sundstrand Machine Tool Co., Rockford, Ill.
 Superior Machine & Eng. Co., Detroit, Mich.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio
 Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Oesterlein Machine Co., Cincinnati, Ohio
 Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable

Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Rotary

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal

Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Vertical

Kearney & Trecker Corp., Milwaukee, Wis.
 LeBlond Mch. Tool Co., R. K., Cincinnati, O.
 Oesterlein Machine Co., Cincinnati, Ohio
 Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow

Genesco Mfg. Co., Inc., Rochester, N. Y.

Name Plates, Etched and Stamped

Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

- Nut Setters, Electric**
Kosa, Chas. A., Philadelphia, Pa.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.
- Nut Setters, Power**
Kosa, Chas. A., Rochester, N. Y.
- Nuts, Machine Screw**
Elco Tool & Screw Corp., Rockford, Ill.
- Pins, Leader And Dowel**
Baumbach Mfg. Co., E. A., 1812 So. Kilmourne Ave., Chicago
- Pipe Bending Machines**
Fedrick Tool & Machine Co., Philadelphia
- Pipe Cutters**
Ridge Tool Co., Elyria, Ohio
- Pipe Plugs, Square Head and Slotted**
Elco Tool & Screw Corp., Rockford, Ill.
- Pipe Vises**
Ridge Tool Co., Elyria, Ohio
- Pipe Wrenches**
Ridge Tool Co., Elyria, Ohio
- Planers, Valve Seat, Portable**
Fedrick Tool & Machine Co., Philadelphia
- Point Thinning Machines**
Oliver Instrument Co., Adrian, Mich.
- Polishing and Buffing Machines**
Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hammond Mch. Builders, Inc., Kalamazoo, Mich.
Mall Tool Co., 7730 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
- Presses, Air**
Hannafin Mfg. Co., 621 S. Kolmar Av., Chgo.
- Presses, Arbor**
Atlas Press Co., Kalamazoo, Mich.
Bartlett, Edwin E., Nashua, N. H.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 8258 Cottage Grove Ave., Chicago
Wilson, R. E., Buffalo, N. Y.
- Presses, Branching**
Bartlett, Edwin E., Nashua, N. H.
- Presses, Foot**
Taylor & Fenn Co., Hartford, Conn.
- Presses, Power**
Hendley & Whittemore Co., Beloit, Wis.
- Presses, Punch**
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
- Presses, Screw**
Jarecki Mch. & T. Co., Grand Rapids, Mich.
- Pulley Machinery**
Avey Drilling Machine Co., Cincinnati
- Profiling Machines**
Wade Tool Co., Waltham, Mass.
- Pulleys, Iron, Solid and Split**
Conway Clutch Co., Cincinnati, O.
- Pulleys—V**
Delta Specialty Co., Milwaukee, Wis.
- Pumps, Coolant**
Roper Corporation, Geo. D., Rockford, Ill.
Tomkins-Johnson Co., Jackson, Mich.
- Pumps, Lubricant**
Ruthman Machinery Co., Cincinnati, O.
- Punch Press Feeds**
Wittke Mfg. Co., 4309 W. 26th Place, Chgo.
- Punch, Shear and Bender, Hand**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
- Punches, Hand**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.
- Punches, Power**
Hendley & Whittemore Co., Beloit, Wis.
- Punches and Dies**
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
- Punches and Shears**
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hagen, H. J., 109 Lafayette St., New York
- Pyrometers**
Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago
- Reamer Holders**
Nicholson & Co., W. H., Wilkes-Barre, Pa.
- Reamers, Adjustable**
Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach-Hunt Tool Co., Cincinnati, O.
- Reamers, Portable Electric**
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
- Riveters, Multiple Spindle**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Riveters, Pneumatic**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Riveting Machine Equipment**
Linsley Bros. Co., Bridgeport, Conn.
- Riveting Machines**
Buffalo Forge Co., Buffalo, N. Y.
Grant Mfg. & Mch. Co., Bridgeport, Conn.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Townsend Mfg. Co., H. F., Hartford, Conn.
- Rod Cutters**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
- Rotary Tables, Hand Feed**
Stevens Inc., John B., 306 Hudson Street, New York

Classified Finding Index

Saw Sharpening Machines

Porter Mch. Co., J. E. Muskegon, Mich.
Scherr Co., Geo., 142 Liberty St., New York
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Delta Specialty Co., Milwaukee, Wis.
Porter-Cable-Hutchinson Corp., Syracuse, N. Y.
U. S. Electrical Tool Co., Cincinnati, O.

Scraping Machines, Hand & Pneumatic
Andersen Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Drill Press

Koss, Chas. A., Philadelphia, Pa.

Screw Drivers, Electric

Koss, Chas. A., Rochester, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Electric Tool Co., 149 Broadway, N. Y.

Screw Drivers, Power

Koss, Chas. A., Rochester, N. Y.

Screw Driving Machines, Automatic

Arnolds Machine Co., Massillon, Ohio

Screw Machine Products

National Acme Co., Cleveland, Ohio.

Screw Machines, Automatic

National Acme Co., Cleveland, Ohio.
Townsend Mfg. Co., H. F., Hartford, Conn.

Screws, Cap, Drive, Lag, Mch. & Wood

Rice Tool & Screw Corp., Rockford, Ill.

Set-Up Appliances

Houser Mfg. Co., 1638 N. Paulina St., Chgo.
Standard Shop Equip. Co., Philadelphia, Pa.

Shaft Hangers and Boxes

Delta Specialty Co., Milwaukee, Wis.

Shafts, Flexible

Haskins Co., R. G. 4654 W. Fulton St., Chicago
Koller Mech. Eng. Corp., 584 Washington St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Shafts, Steel

American Hollow Boring Co., Erie, Pa.
Delta Specialty Co., Milwaukee, Wis.

Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.
Western Mch. Tool Works, Holland, Mich.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Bloom Mfg. Co. 341 N. Francisco Av., Chicago
Buffalo Forge Co., Buffalo, N. Y.
Hodder & Whittemore Co., Elletts, Wis.
Lewthwaite Machine Co., T. H., 311 E. 47th St., New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Slitting

National Machine Tool Co., Racine, Wis.

Shears, Power

Buffalo Forge Co., Buffalo, N. Y.
Hodder & Whittemore Co., Elletts, Wis.
Libert Machine Co., Green Bay, Wis.

Shop Accessories, Home Work

Delta Specialty Co., Milwaukee, Wis.

Slotting Machines, Screw Head

Stevens Inc., John 305 Hudson Street, New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.
Miller & Crowningshield, Greenfield, Mass.
Superior Machine & Eng. Co., Detroit, Mich.
Wade Tool Co., Waltham, Mass.

Speed Reducers, Worm, Spur and Herringbone

Boston Gear Works Sales Co., Norfolk Down, Mass.
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1389 Altgeld St., Chgo.
James Mfg. Co., D.O., 1130 W. Monroe St., Chicago

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Sprockets

Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1389 Altgeld St., Chgo.
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Proconer Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Proconer Safety Chuck Co., 14 S. Clinton St., Chicago

Tapper, Hand

Day State Tool & Mch. Co., Springfield, Mass.

Tapping Machines and Attachments

Avery Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Ettco Tube & Tool Co., Inc., 600 Johnson Ave., Brooklyn, N. Y.
Hammond Mfg. Co., Cleveland, Ohio
Leland Gifford Co., Worcester, Mass.
Proconer Safety Chuck Co., 14 S. Clinton St., Chicago
Western Mch. Tool Works, Holland, Mich.
Whitney Metal Tool Co., Rockford, Ill.

Taps, Collapsing

National Acme Co., Cleveland, Ohio

Thread Millers

Scherr Co., Geo., 123 Lafayette, New York

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tool Heads, Universal

Precision Tool Co., Bridgeport, Conn.

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.
Wilder Tool Co., Greenfield, Mass.

Classified Finding Index

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Laths and Planer

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Spot Facing

Genesee Mfg. Co., Inc., Rochester, N. Y.

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Houston Gear Works Sales Company, Norfolk
Downs, Mass.

Used and Rebuilt Machinery

American Tool Works Co., Cincinnati, Ohio
Automatic Machine & Engineering Co., Inc.,
Detroit, Mich.

Bellefleur & Son Co., A. C., New London,
Conn.

Bennett Machinery Co., 30 Church St.,
New York, N. Y.

Brandes Machinery Co., Cleveland, Ohio
Brant Machinery Co., Pittsburgh, Pa.

Broadway Machinery Co., 211 Centre St.,
New York, N. Y.

Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.

Cincinnati Mch. & Supply Co., Cincinnati, O.
Davis Machinery Exchange, Toledo, O.

Donahue Steel Products Co., 74th and
Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.
Easley Machinery Co., E. L., 651 Washington
Bldg., Chicago

Foster Machinery Co., Cleveland, O.
Hill, Clarke & Co., 649 W. Washington
Bldg., Chicago

Hyman & Sons, Joseph, Philadelphia, Pa.
Indianapolis Mch. & Supply Co., Indian-
apolis, Ind.

International Machinery Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. Co.,
St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, Ohio
Kinsey Co., E. A., Cincinnati, O.

Klauber Mch. Co., E. L., St. Louis.
Lucas & Son, Bridgeport, Conn.

McDonald Machinery Co., St. Louis
Machine Tools Sales Co., Philadelphia, Pa.

Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Mid-West Machine Tool & Supply Company,
Davenport, Iowa

Midwest Equipment Co., 624 W. Lake St.,
Chicago, Ill.

Miles Machinery Co., Sarinaw, W. S., Mich.
Molitor Mch. Co., Chas., 118 S. Clinton
Chicago

Morey and Co., Inc., 408 Broome St., N. Y.
Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia
Oesterlein Machine Co., Cincinnati, Ohio

Osborne & Sexton Mch. Co., Columbus, O.
Palmer, Edward Co., Flint, Mich.

Randall Machinery Co., Cincinnati, O.
Reeve-Fritts Co., 538 W. Washington, Chgo.

Reliance Mch. Sales Co., Pittsburgh, Pa.
Riverside Machinery Depot., Detroit, Mich.

Russell Machine Co., Pittsburgh, Pa.
Saltzman, H. L., 624 W. Van Ruren St., Chgo.

Scott-Bansbach Mch. Co., 4607 W. 20th St.,
Chicago

Segal Co., Herbert "Action", Newark, N. J.
Segal Mch. Co., 809 W. Lake St., Chicago

Selfreest-Bistad Machinery Co., Dayton, O.

Used and Rebuilt Machinery—Cont.

Savin Machinery Corp., 30 Church St.,
New York

Simmons Machine Tool Corp., Albany, N. Y.
State Mch. Co., Inc., New Haven, Conn.

Stoehr Mch. Co., A. M., 106 So. Jefferson
St., Chicago

Strafer Machinery Co., Jersey City, N. J.
Strong, Carle & Hammond Co., Cleveland

Surplus Material & Mch. Co., Detroit, Mich.
Taylor-Hall Welding Corp., Worcester, Mass.

Toledo Machinery Exchange, Toledo, Ohio
United Mch. & Supply Co., St. Louis.

Wachs-Gregg & Co., 117 N. Jefferson St.,
Chicago

Wertman Mch. Co., W. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson
St., Chicago

Winglesworth Mch. Co., Boston, Mass.
Winterer, Herman L., Philadelphia, Pa.

Vises, Air Control

Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.

Vises, Air Operated

Hannifin Mfg. Co., 621 S. Kolmar Av., Chgo.
Tomkins-Johnson Co., Jackson, Mich.

Vises, Drilling Machine

Armstrong-Bloom Mfg. Co., 341 N. Francisco
Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Bay State Tool & Machine Co., Springfield,
Mass.

Hagen, H. J., 109 Lafayette St., New York
Heuser Mfg. Co., 1638 N. Paulina St., Chgo.

Martin Tool & Die Works, J. E., Springfield, O.
Miller & Crowningshield, Greenfield, Mass.

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Superior Tool & Die Co., Milwaukee, Wis.

Vises, Machinists'

Bay State Tool & Mch. Co., Springfield, Mass.
Miller & Crowningshield, Greenfield, Mass.

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Wash Co., 21 So. Clark St., Chicago
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Hagen, H. J., 109 Lafayette St., New York
Hartford Special Mch. Co., Hartford, Conn.

Heuser Mfg. Co., 1638 N. Paulina St., Chgo.
Miller & Crowningshield, Greenfield, Mass.

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Stevens Inc., John B., 306 Hudson Street,
New York

Vises, Shaper

Plunket Mch. Co., J. E., 215 N. Ada, Chgo.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Superior Tool & Die Co., Milwaukee, Wis.

Welders, Butt, Spot and Seam

Lenney Mch. & Mfg. Co., Warren, Ohio

Wood Screws

Eloco Tool & Screw Corp., Rockford, Ill.

Wood Working Machinery

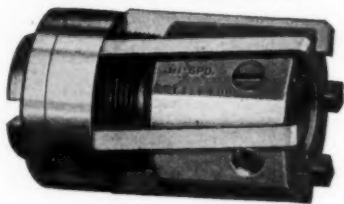
Hendley & Whittemore Co., Beloit, Wis.
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Worms

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Reamers made with Left Hand Angle Cutting Blades do not dig in, and all chatter is eliminated. This means free, clean cutting, smooth holes, and increased production.

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The left hand helical flutes cut fast and clean. Made only in high speed steel. Made with straight and tapered shanks.

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Used and Rebuilt Machinery Section

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery, and the publisher will pass them along to the advertisers.

FOR SALE BY

A. M. Stoehr Machinery Co.

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Balancing mch., Gisholt precision.
Baling press, scrap metal, belt dr.
Drill, No. 216 Becker heavy duty.
Millers, No. 2 Cincinnati plain.
Pipe mche., Saunders cap. 4" to 12".

Polishing machine, Centerless, 3".
Rolls, 4' x 1 1/2" & 8" x 5/16" pyr. type.
Saw, No. 3 1/2 Ryerson friction.
Shears, 52" x 14 ga. & 10' x 10 ga.
Slitter, Voder 36", 16 ga., m. d.

FOR SALE BY

State Mchy. Co., Inc., 865-867 Congress Ave., New Haven, Conn.

Automatics, Gridley 2 1/2", 4-spindle (2).
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Lathe, 26x48 McCabe 2-in-1.
Pipe threading machine, 8" Eaton, Cole & Burnham, motor drive.
Shapers, 16" Gould & Eberhardt crank, back geared (3).

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Grinder, No. 22 Heald rotary surf.
Hobbers, Nos. 3, 12-B & C.

Lathe, No. 9 LeBlond multi-cut.
Millers, Nos. 1 & 2 Brown & Sharpe.
Miller, No. 13-B Brown & S. prod.
Radials, 3' Cincinnati Bickford.
Turret lathe, No. 6 Warner & S.

Partial list; send us your inquiries.

FOR SALE BY

Surplus Material & Machinery Co.,

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Air compressors, 14x14 Bury, motor drive.
Brake, 12' 18 ga. Chicago Steel, hand.
Brake, 8' 10 ga., Robinson power, belt drive.
Shaper, Smith 26" b. g. crank, cone drive.

Send for late list.

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United Mchry. & Supply Co.,

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Bolt cutter, 3" National single.
Bulldozers, W. & W. No. 3 & U-29.
Drill, Foote-Burt rail, 8 spindles.
Grinder, Modern 12x36.
Lathe, American 18"x12' q. c.
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Miller, Brown & Sharpe vertical.
Pipe threader, Oster 1 to 4" dies.
Presses, Swaine Nos. 29, 31, 4.
Presses, No. 2 Consolidated (2).
Punch, gang, 32" bet. housings.
Rolls, (3), 7' x 7", 6' x 5", 6' x 9".

USED AND REBUILT MACHINERY

FOR SALE BY

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Drill, Avey 2 spindle, ball bearing No. 2 taper.....	\$ 275.
Lathe, 14x6 Davis q. c. gear, 2-chucks motor drive, d. c.....	225.
Lathe, 13x5 Seneca Falls, motorized, taper attachment.....	200.
Lathe, 18x8 Mueller, 2-chucks, quick change geared.....	400.
Lathe, 18x12 Davis, 2-chucks, quick change geared.....	425.
Lathe, 28x12 Hamilton, all gears, 2-face plates.....	250.
Miller, No. 2 Kemp Smith plain, dividing head and tail stock.....	450.
Miller, No. 4 Cincinnati universal, vertical head, slot, att.....	650.
Punch press, No. 54 Walsh back geared 4" stroke.....	550.
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Auto. screw mch., No. 0G Brown & S., serial no. 4290 with a. c. motor.....	600.
Automatic screw machine, No. 0 B. & S., serial no. 1839.....	325.
Automatic screw machine, 1 1/2" Gridley 4 spindle model F.....	500.
Automatic screw machine, 1 1/2" Gridley 4-spindle model G.....	750.
Automatic screw machine, 2 1/2" Cleveland model A, square pan.....	500.
Automatic screw machine, 2 1/2" Cleveland model A, square pan.....	500.
Bolt cutter, 2" D. & H., double head.....	200.
Drill, 4-spindle L. & G., h. s., b. b., tapping attachment on 1 spindle; p. f. 2 spindles, 1 plain spindle.....	700.
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Grinder, No. 190 Greenfield universal cutter and tool, complete.....	250.
Grinder, Capitol internal, capacity 3/16" to 2"x2".....	150.
Grinder, No. 7 Gardner 30", b. b. with press, belted motor drive.....	325.
Lathe, 13"x5' South Bend, draw-in and chuck.....	225.
Lathe, 16"x8' LeBlond quick change.....	450.
Lathe, 18"x7' South Bend, q. c., a. c., motor.....	600.
Lathe, 18"x9' Chard semi-quick change gear.....	400.
Lathe, 18"x8' Davis heavy duty, q. c. g., d. b. g., 14" 4-jaw chuck.....	600.
Lathe, 30"x13' H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	1,350.
Miller, No. 3 Kemp Smith, cone drive, with c/s and vise.....	700.
Miller, No. 1 Garvin universal, fully equipped.....	450.
Miller, Cleveland universal, No. 1 g. h., fully equipped.....	750.
Miller, No. 2 MU. Garvin universal, fully equipped.....	550.
Miller, Briggs, G. & E. manufacturing, 16".....	150.
Miller, No. 5 Becker vertical, no rotary.....	500.
Miller, No. 7 Becker, Lincoln type.....	150.
Miller, No. 21 Garvin power feed, oil pump.....	150.
Miller, Hendey, Lincoln type.....	100.
Miller, No. 12 Brown & Sharpe production type.....	150.
Miller, Ingersoll slab, 42"x36"x9".....	1,000.
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Planer, 36"x36"x12" Cincinnati with 2 heads.....	1,200.
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Screw machine, No. 1. B. & O. plain head, 13/16" capacity.....	225.
Screw machine, No. 0 Brown & Sharpe hand.....	125.
Separator, Curtis oil, 1 bushel.....	275.
Separator, oil, American 1 1/2 bushel.....	300.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s.....	600.
Shaper, 20" Columbia back geared crank.....	750.
Shaper, 21" Milwaukee, b. g., with c/s and vise.....	700.
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Turret lathe, 24"x36" Acme with chucking equipment.....	500.
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West Penn Machinery Company

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Air comp., 6"x6" Chicago, 31 cu. ft.
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Air comp. 6"x6" Worth, 52 c. f. m. d.
Air comp., 8"x8" Bury "BB", 79 c.f.
Air comp., 8"x9" Hall, 92 cu. ft.
Air comp., 8"x8" Bury, 129", 220-3-60.
Aircomp., Nat'l. 150", 440 v., 3-60 cy.
Air comp. 10"x10" Bury, 228", 220-3-60.
Air comp., Nat'l. 705 c.f. 440-3-60 cy.
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Bolt cutter, 2" Garvin, Landis head.
Bolt cutter, 1 1/2" Landis, dbl. head.
Bolt cutter, 1 1/2" Landis, 3hds., m. d.
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Boring mill, 10'-16" Betts, 2 hds. m. d.
Boring mill, 16" Betts, 2 hds. m. d.
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Boring mill, 3 1/2" bar Rochester, m.d.
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Brake, 6' hand. 16 gauge.
Brake, 5' D. & K. 10 ga. box & pan.
Brake, 10' Dreis & K. 10 ga. b. d.
Brake, 10' Dreis & K. 3/16", m. d.
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Drill, radial, 6' American universal.
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Gear cutter, spur, 36"x10" Newark.
Gear cutter, 72" Gould & Eberhardt.
Gear hobber, 6" Schuchardt & Sch.
Grinder, int. cyl., No. 5 Landis, m.d.
Grinder, rad., 14", 220 v. 3 ph. 60 cy.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, tool & cut., No. 2 Walker.
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Hammer, 80-lb. Bradley, cush. helve.
Hammer, 200-lb. Bradley, compact.
Hammer, 500-lb. Beaudry, upright.
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Hammers, steam, 600 lb. to 6000 lb.
Jacks, 35-ton Barrett, ball bearing.
Jointer, 24" Fay & Egan.
Keyseater, No. 00 Baker.
Lathe, 16"x6" Hendey, t. c. g.
Lathe, 20"x8" Hendey, tie bar, t. a.
Lathe, 24"x16" Bridgeford, grd. hd.
Lathe, 48"x26" Bridgeford, g. hd. m.d.
Lathe, 32"x34" Pittsburgh, m. d.
Lathe, Lo-Sw., 3 1/2"x60" Fitchburg.
Lathe, 16"x6" Fox, brass.
Lathe, turret, 18" Libby, m. d.
Lathe, turret, No. 6 Warner & S.
Lathe, turret, No. 8 W. & S. b. d.
Lathe, turret, 24" Steinle, 6 1/2" hole.
Lysolm tables, 72"x30".
Miller, duplex, 24" Cincinnati auto.
Miller, hand, United States 6"x24".

Miller, plain, No. 2-A Milwaukee.
Miller, Ingersoll, 48"x48"x20' adj. rail.
Miller, vert. No. 5 Brown & Sharpe.
Pipe mchs., 8" Oster and Williams.
Planer, 30"x30"x10' Woodward & P.
Planer, o. s., 36"x36"x16" D. & H.
Planer, rotary, 48" Niles, m. d.
Press, arbor, No. 7 Greenerd.
Press, o. b. i. Ferracute Cl. 3" st.
Press, o. b. i. No. 3 Toledo, 2 1/2" at. m.d.
Press, hydraulic, 1,000 ton United.
Press, s. s., 13"x19 1/2", 2" stroke.
Press, geared, No. 34 Toledo.
Press, No. 75 Toledo, 1 1/2" stroke.
Press, No. 78 1/2" Bliss, t. r., 10" stroke.
Press, No. 92 B Toledo, d. c. 2 1/2" str.
Press, No. 94-P Toledo, 42"x196".
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Punch, hand, Shatz, bar and angle.
Punch & sh. No. 6 L. & A. 1" thru 1 1/2".
Punch & sh., Cleve. "C" 48" thr. m.d.
Punch & sh., No. 24-U Buffalo m.d.
Punch, multiple No. 5 H. & J. 10".
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Rolls, bending, 6"x14 ga. hand.
Rolls, bending, 7"x 1/2" Cleve., m. d.
Rolls, bending, 12"x 1/2" H. & J. d. e.
Saw, cold, 48" Newton, m. d.
Saw, frict. Model 1-A Hunter, 24".
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hot, 54" Mesta sliding frame.
Shapers, 16", 20", 24", 36" G. & E.
Shaper, 20" Ohio crank.
Shaper, 24" Potter & Johnston, b. d.
Shapers, 34" Cincl. & Stockbridge.
Shear, angle, 6"x6"x 1/2" Cleveland.
Shear, alligator, 14", 2", 3" & 4".
Shear, bar o.e., No. 12 Will., 2 1/2" rd.
Shear, bevel, Lennox 4".
Shear, gang splitter, No. 235-A Bliss.
Shear, Gray, 3/16", 34" gap.
Shear, guil. No. 5 Cleveland, 3 1/2" sq.
Shear, sq., 20"x18 ga. Bliss power.
Shear, square, 36"x16 ga. Pexto.
Shear, plate, 54"x 1/2" Garrison 24" gap.
Shear, sq. 12"x14 ga. Kutscheid.
Shear, 12"x 1/2" Wheeling, 31" gap, m.d.
Shear, rotary, Marshalltown 1 1/2" b.d.
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, 60" Nat. 14 ga. 17 rolls.
Straightener, H. & J. 48"x 1/2" 8 rolls.
Straightener, Phila., 7"x 1/2", 8-rolls.
Straightner, shape, Abramson, 2" square capacity.
Straightener, No. 4 H. & J. 15" beams.
Swaging machine, No. 3 Langelier.
Testing mche., Brinnell, hardness.
Testing mch., 100,000-lbs. Olsen, m.d.
Upsetters, 1" to 6".
Welders, spot and butt.

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Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Thomson No. 100, 20 k. w. spot welder.
Taylor D-35-4, 40 k. w. spot welder.
Thomson 35 k. w. spot welder.
Taylor-Winfield 2 k. w. spot welder.
Winfield 20 k. w. spot welder.
Winfield B50SA, butt welder, cap. $\frac{1}{4}$ "
Thomson 7A auto. butt welder, cap. $\frac{1}{4}$ ".

Toledo 8B butt welder, cap. $\frac{1}{4}$ ".
Thomson No. 3 butt welder, cap. $\frac{1}{4}$ ".
National 11-A butt welder, cap. $\frac{1}{4}$ ".
Toledo No. 6 butt welder, cap. $\frac{1}{4}$ ".
National 15-A butt welder, cap. $\frac{1}{4}$ ".
Thomson 2-C, cap. $\frac{1}{4}$ " butt welder.

New machine guarantee with every welder.

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36"x22' American, 5 step, s.b.g., g.c.
60"x16' New Haven, raised to 70".
30"x14' Prentice q. c.
27"x14' Pond, q. c.
21"x12' LeBlond, q. c.
26"x48"x10' McCabe double-spindle.
21"x10' LeBlond q. c.

20"x8' Whitcomb-Blaiadell, grd. hd.
18"x8' Cincinnati, q. c.
18"x8' Mueller q. c.
18"x8' American, quick change.
17"x8' LeBlond, q. c., taper.
11"x22' centers Artisan gap, m. d.

MILLING MACHINES.

No. 2 LeBlond plain.
No. 3 LeBlond plain.
No. 3 Cincinnati, single pulley.
No. 4 Cincinnati universal.
No. 2 Cincinnati universal.

No. 4 Cincinnati vertical.
No. 4 Cincinnati vertical with a. c. motor, complete.
No. 2 Cincinnati vertical.
Owen two-spindle.

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24" Bullard, New Era.
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10-16" Niles, 2 heads.
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51" Niles, 2 heads.

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48"x48"x10' Belmer, 4 heads.

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48"x10' Belmer, 4 heads.
30"x6' Gray.
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DRILLS AND RADIALS

2 and 3-spindle Henry & Wright.
4 and 2-spindle Sipp.
1 and 2-spindle Kokomo hi-speed.
No. 310 Baker heavy duty.
Footie-Burt heavy duty.
6' and 8' Americans, single pulley.
4' Cincinnati-Bickford, motor drive.

4' Mueller, single pulley.
4 1/2' Morris, with motor.
4' Roos & Mill, single pulley.
20" to 38" uprights.
Fox multiple, head 32"x45", Type 5, gear box drive.

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Bending rolls, 8"x11" Bement-Miles, a. c., 220 volt motor drive.
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Compressor, 13/8/10 Worthington.
Crane, 10 ton Case, three motor.
Crane, 5 ton P. & H., three motor.
Cranes, 3 1/2 ton Case, (2).
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Gear hobber, 14" G. & E. sgl. pulley.
Gear hobber, 18" Gould & E.
Grinders Norton & Modern cyl.
Grinders, disc No. 120 Gardner.
Grinder, Bryant internal.
Grinders, planer type Brown & S. and Springfield.
Grinder, No. 2 Reid surface (no magnetic chuck).

Hack saw, 8x8 Racine, 3 speeds.
Hack saw, 6x6 Racine.
Press, 20 ton Lorie hydraulic.
Press, No. 2 V. K. & V. inclinable.
Punch & shear, No. 64 L. & A. s. e.
Riveters, Lattice air; also several Allen pinch bug type.
Saw, Ryerson friction, motor drive, 30 h. p. motor, 60' roller feed way.
Shear, universal angle, Long & A., turntable type, capacity 6"x6"x1" angles, motor drive.
Slotter, 20" Dill.
Turret lathe, 21" Gisholt, motor.
Turret lathe, No. 4 Warner & S.
Turret lathes, 4 1/2" Gisholts, with motor.

USED AND REBUILT MACHINERY

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Marr-Galbreath Machinery Co.,

Air comp., 4½"x1½" & 6"x6" Curtis.
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Band saw, 16" Racine for motor dr.
Bender & straight'r, cap. 12" beams.
Blower, No. 7 Sturt. 12" outlet,
horizontal bottom dis.
Blowers, Root No. 4. 500 c. p. m.
Blowers & exh., 6, 8, 9 & 16" opening.
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Bolt cutter, 1½" Landis, dbl. hd. (l. s.)
Bolt cutter, 2" Acme, single head.
Boring mill, 54" Maxi type, 2-hds.,
a. c. motor drive.
Boring mill, 30" King.
Boring mill, 24" bar W. & S. horiz.
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capacity 16 gauge.
Brake, 6" No. 161 Chicago for 16 ga.
Brake, 8"x12 ga. power, Chicago.
Brakes, hand, 6", 10", for 18 ga.
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Drill, 20" Aurora, t. a., for m. d.
Drill, radial, 5" Western, g. b., m. d.
Drill, sensitive radial, 3" Amer. t. a.
Driller, Detroit 5-spindle semi-auto.,
Folders, bench 30" hand (6).
Forging mach., 14" Ajax, steel bed.
Forging mche., 3½" Ajax, steel bed.
Forging mche., 3" Acme steel bed.
Furnace, rotary annealing, 12"x8".
Furnaces, oil tempering, 10"x10"x10".
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Grinder, No. 1 LaSalle surface.
Grinder, 18-D. Rowbottom, o. h. b. b.
Hack saw, 6"x6" Racine, belted.
Hack saw, Peerless, 6" univ. shaping
Hammer, 2-B. Nazel, belt.
Ham., 280 lb. L. Giant belt pwr. new.
Ham., 400 lb. No. 10 Beaud., pwr. b. d.
Hammer, 800 lb. Erie atm. forg., s. f.
Hammer, 1000 lb. Chbg., steam drop.
Keyseaters, No. 00 & No. 2 Baker.
Keyway cutter, 24" Morton, cap. 2½".
Lathe, 14"x6" Hendey q. c. g., pan,
t. a., chuck, belt drive.
Lathe, 15"x6" South Bend, chuck.
Lathe, 15"x6" Mulliner, q. c. g. t. a.; d-in
Lathe, 13"x7" S. Bend, p. c. g. ck. c/s.
Lathe, 16"x8" S. Bend, 2 cks. & c/s.
Lathe, 18"x8" L. & S. sel. hd. m. d. t. a.
Lathe, 21"x8" LeBlond, q. c. g.,
d. b. g., 14" h. s., chuck.
Lathe, 16"x10" Prentice, g. h. q. c. g.,
14" h. s., t. a., chuck.
Lathe, 26"x12" 10" Wickes, semi-
q. c. g.; h. s., chuck, c/s.
Lathe, 38"x18", s. b. g., chuck, dbl.
friction pulley c/s.
Miller, vertical, No. 3 Becker, cone,
Miller, 18" Cincinnati, plain horiz.

58 Water St., Pittsburgh, Pa.

Miller, pl. No. 0 Y B. & S., 18x6x15".
Miller, No. 28 Ohio pl. auto. feeds.
Miller, No. 1½ Knight, sh. r. t. vise; chk
Milling machine, No. 3 LeBlond
pl. 34x10x20", b. g., cone drive.
Milling machine, No. 5-B Becker
vert., g. b. for con. sp., m. d.
Motors, ½, 2, 5, 7½ h. p. 3/60/220 v.
Motor, 5 h. p. 500 v. d. c., 1540 rev.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motor, 20 h. p. 220 v. d. c., 350/1050 rev.
Motor, 25 h. p. slip rg., 3/60/220/1160.
Pipe mch., 6" Jar'ki pump, pip. dies.
Planer, 24"x24"x6" Gray, 1-head.
Planer, 30"x10" W. & P., 2-heads.
Press, No. 3A Bliss, adj. table.
Press, F-162 Ferracute, foot power.
Presses, Nos. 3&4 Bliss, punch type.
Presses, o. b. i., No. 1 Toledo.
Pr., o. b. i. No. 1 VKV; No. 1 Sidney.
Press, o. b. i. No. 3 Niagara, 1½" str.
Press, C-3 Ferracute, o. b. i., plain.
Presses, foot, No. 87 Bliss, pendulum.
Press, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 87 Niagara, screw.
Press, s. s. 66" bet. hgs, 7400 lbs;
roller feed motor drive.
Punch, s. e., Badger, 7" thrt., ½"x½".
Punch, s. e., Badger, 8" thrt., ½"x½".
Punch, s. e., H. & J., 7" thrt., 1"x½".
Punch, s. e., Buffalo 30" thrt., 1½" cap.
Punch, No. 8 Badger, hand power,
4" tht; cap. 5/16"x½".
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10" tht; wt. 140 lbs.
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Punch & shear, s. e., 36" & 46" thrt.,
½"x½", m. d.
Punch & stake riveter, No. 123-C.
Toledo boiler makers.
Riveter, Grant 101, cap. 5/16" m. d.
Riveters, 1-AA, 3-A, 5-B, hi. speed.
Riveter, ½" Shuster rotary, belt.
Screw machine, No. 0G B. & S.
automatic, belted motor drive,
Shaper, 7" Rhodes, vert. ram, m. d.
Shaper, 15" Hendey friction, vice, c/s.
Shaper, 26" & 16" Cin., b. g., crank.
Shaper, 24" S. & M., b. g., crk., A-1.
Shear, 42"x½" Niagara, 18" gap.
Shears, ½" & ¾" Lennox, throatless.
Shear, plate, 60"x½" L. & A. 7"
gap, arr. for motor drive.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, 36" throat cap. 7/32".
Shear, rotary, 16 ga., Yoder, 24" thr.
Shear, squaring, 8"x14 ga. power.
Shear, squaring, 60"x14 ga. Canton.
Shear, 10"x16 ga. Ohl power.
Shear, squaring, 30"x18 ga., F. & P.
Slotter, 15" Dill, for motor drive.
Spin. lathe, No. 6 Bliss, c. r., tailstock,
Thread, mch., ½" Geometric, s. s. d. st.
Turret, No. 4 W. & S., g. f. h. w. f.

USED AND REBUILT MACHINERY

FOR SALE BY

Foster Machinery Company,

Bending rolls, 8"x12" Pyramid drop end.
 Brake, 6', 10 ga., box and pan
 Drill, No. 2 Bausch multi-spindle.
 Draw bench, 12' Waterbury-Farrell.
 Hoists, elect., 3, 5 & 10 ton Euclid.
 Keyseater, Baker No. 0, cuts 1" keys.
 Lathe, 20"x5 1/2' American geared hd.
 Lathe, 16"x10' Whitcomb & Blaisdell.

2613 E. 73rd St., Cleveland, Ohio

Lathe, 19"x12' LeBlond heavy duty.
 Punch, EF Cleveland, 72" throat.
 Riveter, 3-A High Speed.
 Riveters, air, 30 ton & 50 ton Hanna.
 Rotary planer, 50" Cleveland.
 Shaper, 24" Gould & Eberhardt.
 Shear, 12"x14 ga. Loy & Nawrath.
 Turret lathe, No. 3-A Warner &
 Swasey univ., chucking equip.
 Welder, National butt, cap. 1".

FOR SALE BY

Davis Machinery Exchange,

1-3-5 So. St. Clair St., Toledo, Ohio

Bolt threader, 1/2" Landis dbl. head.
 Bolt threaders, 1 1/2" and 2" National.
 Boring mill, 24" Bullard vertical, new era head.
 Drill, 20" Barnes camel back.
 Drill, 20" Barnes, 4-spindle.
 Drill, No. 310 Baker hvy. duty, (2).
 Drill, 3 1/2" Carlton radial, g. b., s. p. d.
 Drill, 3" Bickford radial, g. b., s. p. d.
 Drill, 3" gang radial, tapping attachment, universal table.
 Drill, 2-spindle Allen, h. s. b. b.
 Drill, Henry & Wright, h. s. b. b.
 Drill, Sipp, h. s. b. b. (2).
 Drill, No. 2 Avey, h. s. b. b.
 Drill, 2-spindle, L. & G. h. s. b. b.
 Drill, Pierle, h. s. b. b.
 Drill, 24" Cincinnati s. h., b. g., p. f.
 Drill, 16" Kern hi-speed.
 Drill, 6-sp. Nat. Acme horizontal.
 Drill, 6-spdl. H. & W., h. s., b. b.
 Grinder, No. 2 Gardner disc, comp.
 Grinder, No. 4 Gardner disc comp.
 Grinder, No. 4 Gardner disc, 15 h. p. motor drive.
 Grinder, No. 4 Oliver drill pointer.
 Grinder, No. 14 Brown & S., plain.
 Grinder, 10"x36" Landis pl. scil-con.
 Grinder, No. 60 Heald cylinder.
 Grinder, Walker univ. tool & cutter.
 Grinder, No. 2 Oakley univ., comp.
 Groover, 42" Toledo power.
 Hack saws, 6x6 Racine & Peerless.
 Hammer, 1/2" Schuster riveting.
 Keyseater, No. 0 Mitts & Merrill.
 Keyseater, No. 0 Baker.
 Keyseater, No. 2 Davis, cap. 1".
 Keyseater, No. 3-A Mitts & Merrill.
 Lathe, 19"x10" Sidney q. c. g.
 Lathe, 16"x6" LeBlond q. c. g. t. att.
 Lathe, 16"x6" Walcott q. c. g. t. att.
 Lathe, 16"x8" South Bend, std. c. g.
 Lathe, 17"x8" Sidney q. c. g. taper att.
 Lathe, engine, 18"x7" Lehmann, q. c. g., chuck.

Lathe, 18"x8" American q. c. g.
 Lathe, 18"x10" American q. c. g., taper and relieving attachments.
 Mill, No. 1 Kempsmith universal.
 Mill, No. 2 LeBlond univ. index & vertical head, complete.
 Mill, No. 1 1/2" Becker-Brainard universal, complete.
 Mill, No. 1 1/2" Cincinnati plain, all geared feeds.
 Mill, No. 2 Kempsmith plain.
 Mill, No. 0 Steptoe, p. 1.
 Mill, A. B. Becker vertical.
 Mill, Model C. Becker vertical.
 Mill, No. 3 B. & S. vertical, s. p. d.
 Mill, No. 6 Whitney hand, (6).
 Mill, No. 12 B. & S. production, (2).
 Miller, No. 1 Toledo b. b. hand (2).
 Milling and drilling machine, No. 1 1/2" Knight.
 Nibbler, metal No. 1 Campbell.
 Oil groover, Fisher No. 1.
 Presses, arbor, No. 3, No. 5 Greenerd.
 Press, No. 4 Toledo o. b. i., flywheel.
 Press, No. 39 Bliss horning, flywheel.
 Press, No. 3 Bliss, s. b., flywheel.
 Press, No. 4 Amer. Can type P.
 Press, No. 8 Bliss, bench type (5).
 Press, No. 81 Consolidated, bench.
 Press, 40 ton Manhattan screw.
 Screw machine, No. 6 Warner & S.
 Screw machine, No. 7 Foster.
 Screw machine, No. 4 Foster.
 Lathe, 16"x8" Oliver q. c. g., engine.
 Screw mche., 1/2" Cleveland Model A.
 Screw mche., 1 1/2" Cleveland Model A.
 Shaper, 16" Whipp crank, s. g.
 Shaper, 16" & 20" Cin. crank b. g.
 Shaper, 16" & 20" Steptoe crank b. g.
 Shaper, 24" Smith & M. crank, s. p. d.
 Shaper, 24" Walcott crank, b. g.
 Tappers, No. 1 & No. 2 X Garvin vertical (5).
 Threader, 1/2" Geometric.
 Welder, 50 k. w. Taylor spot. 440 v.

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USED AND REBUILT MACHINERY

FOR SALE BY

The Jones Machine Tool Co.,

Front & Pike Sts., Cincinnati, Ohio

Boring mill, No. 9 Giddings & Lewis
3" bar.

Gear cutter, No. 13 B. & S. spur &
bevel.

Gear hobber, No. 12 Barber Colman.

Grinder, No. 1 Diamond m. d.

Lathe, 20"x6" Monarch geared head
motor in leg.

Lathe, 18"x10" Hendey q. c. tie bar.

Lathe, 28"x14" B. & E., q. c. cone dr.

Miller, No. 2 Cincinnati high power s. p.

Miller, No. 2-M Cin., s. p. d. plain.

Press, 15 ton Lucas forcing.

Turret lathe, No. 3-A W. & S. s. p. d.

Turret lathe, No. 2-A W. & S. s. p. d.

Our warehouse is full of bargains—Send for our list.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

BOLT THREADERS

1 1/2" Landis.

1 1/2" Landis double head.

2" Landis double head.

2" Landis.

BORING MILLS.

No. 1 P. & H. boring and drilling
machine.

34" Gisholt turret lathe.

DRILLS.

3' arm American, motor-driven.

5' arm Niles half-universal.

14" Mason high speed.

20" Champion.

22" Barnes back geared.

25" Barnes back geared.

32" Prentice sliding head.

1 spindle Avey.

2-spindle Allen.

2-spindle No. 1 Avey, ball bearing.

3-spindle Avey.

8-spindle Bausch.

GRINDERS.

Wells Bros. universal.

Greenfield universal.

12"x60" Landis vertical.

LATHES.

14"x10" Lodge & Shipley, q. c. g.

16"x6" American geared head, t. a.

24"x10" LeBlond.

24"x12" Lodge & Shipley.

26"—48"x16" McCabe 2-spindle, hvy.

35"x18" Prentice.

20"x10" Bradford.

24"x12" Boye & Emmes, q. c. g.

24"x14" Whitcomb-Blaisdell, motor
driven.

30"x15" Lodge & Shipley, q. c. g.

MILLERS.

No. 1 U. S. hand.

No. 2 LeBlond universal.

No. 3 Rockford hand.

No. 9 Burke bench.

No. 3 Brown & Sharpe universal.

No. 5-B Brown & Sharpe.

No. 14 Kempsmith plain.

PIPE THREADING MACHINES.

1 1/2" Landis.

2" Landis.

2" Bignall & Keeler.

6" Jarecki.

8" Williams.

PRESSES

No. 3 Toledo.

Stiles & Parker drawing.

No. 1 1/2 Bliss toggle.

No. 24 Toledo cam drawing.

No. 723 Toledo cam drawing.

SCREW AND TURRET MACHINES.

No. 3-A Warner & Swasey.

No. 2 Warner & Swasey hollow hex.

3"x36" Jones & Lamson.

2" Cleveland single spindle automatic
screw machines.

SHAPERS.

14" Steptoe.

16" Smith & Mills shaper.

24" Milwaukee.

32" Cincinnati shaper.

MISCELLANEOUS.

Bar shear, 5"x 1/2".

Hammer, 60 lb. Bradley helve.

Hammer, 250 lb. Little Giant.

Hammer, 500 lb. Beaudry.

Hammer, 600-lb. steam.

Punch, No. 14 W. W., 12" throat.

Saw, No. 17 Higley cold.

Tapper, auto., Rickert & Schafer.

USED AND REBUILT MACHINERY

FOR SALE BY

General Machinery Corporation,

140 Federal St., Boston, Mass.

Drill, Sibley 24" sl. hd., b. g., p. f.
Drill, Myers 14" rd. and sq. tables.
Grinder, Landis 6x18 plain, c. s.
Lathe, Warner & Swasey fox.
Lathe, Monarch 12"x5" q. c. g.

Miller, Becker, No. 7H (Lincoln).
Miller, Hendey No. 8 (Lincoln).
Press, Niagara No. 2 flywheel.
Shaper, Hendey 15" friction.
Shaper, Potter & Johnston 15" univ.

FOR SALE BY

Brandt Machinery Company,

50 Penn Ave., Pittsburgh, Pa.

Bolt cutters, Landis, 1", 2" and 3".
Bolt cutters, Acme, 1 1/2", 2", 4", 5", 6".
Boring mills, 84" Niles 2 heads.
Boring mill, No. 21 Lucas 2 1/2" bar.
Boring mill, No. 35 Landis floor.
Boring mill, 6 1/2" bar Niles.
Bulldozers, Nos. 2, 3, 4, 5, 26, 7, 29, 9.
Bending roll, 8"x4 1/2"x1 1/2" d. e.
Bending roll, 10"x3 1/2" and 1 1/2" d. e.
Bending roll, 12"x3 1/2"x1 1/2" d. e.
Bending roll, 14"x3 1/2"x1 1/2" d. e.
Bending roll, 16"x3 1/2"x1 1/2" d. e.
Flanging machine, 1" McCabe.
Forging mche., 1 1/2"x1 1/2" Ajax, steel.
Lathe, 21"x8" LeBlond, q. c. g. \$500.
Milling mche., No. 4 Cin. pl., s.p.d.

Press, 45"-400 ton Niles, wheel.
Press, No. 168 Toledo, toggle.
Planer, plate, 36" Bement.
Planer, 36x36x14' Gray, 2 hds., m.d.
Planer, 48"x48"x12' Niles, 2 heads.
Planer, 84"x84"x30' Sellers, 4 heads.
Planer, 36"x36"x10' D. & H. o. side.
Punch, horizontal, L. & A. 6" thrt.
Pipe machine, 6" Landis, A-1.
Shear, 48"x4" Cincinnati 15" throat.
Shear, 50"x4" Garrison, 27" throat.
Shear, 42"x1" United, 13" throat.
Shear, 10"x3/16" Ohl, under drive.
Shear, No. 7 H. & J. guil. type 5 1/2".
Screw machine, No. 2G B. & S.

May we have your inquiries?

FOR SALE BY

Herman L. Winterer, • 947-953 N. Front St., Philadelphia Pa.

Boring mill, Bement-Miles horiz. 4 1/2" bar with revolving table.....	\$2,200.
Boring mill, 60" Niles car wheel.....	250.
Boring lathe, Johnson journal bearing boring type (2) each.....	125.
Drill press, 48" Almond, sensitive radial, post type.....	125.
Drill, press, 24" Foote-Burt, heavy duty.....	300.
Drill press, 24" Snyder, sliding head.....	125.
Grinder, disc, No. 17 Besly.....	200.
Lathe, 37 1/2"x14" Johnson, d. b. g., q. c. g., taper attachment.....	1,200.
Lathe, 32"x12" Pittsburgh, heavy duty, d. b. g., q. c. g.....	1,000.
Lathe, 27"x12" Bullard, d. b. g., q. c. g.....	500.
Lathe, 26"x11" Wickes, d. b. g., q. c. g.....	550.
Lathe, 28"x10" Niles, d. b. g., q. c. g.....	500.
Lathe, 18"x10" Reed, p. c. g.....	160.
Lathe, 16"x8" Hendey, p. c. g.....	175.
Lathe, 14"x6" American, q. c. g. taper attachment.....	190.
Milling machine, No. 3 Becker, universal with vert. attachment.....	700.
Milling machine, No. 15 Garvin.....	225.
Moulding machines, Tabor, 14"x21"—13" cylinder (7) each.....	100.
Planer, 48"x48"x12" Gray, 2 heads.....	1,450.
Presses, Waterbury-Farrel D. A. 2 1/2"-3" str., wt. 26000 lb. new (3) ea.....	1,000.
Punch, Cleveland multiple, 72", 15" throat, max. cap. 96" long.....	1,600.
Punch presses, all sizes (15) steam pumps, air compressors & engines	
Riveter air, 6" gap Allen, cap 1 1/2" rivets.....	400.
Riveter, air, 6" gap Allen, cap 1 1/2" rivets.....	200.
Shaper, 16" Smith & Mills, with vise.....	170.
Turret lathe, 3x36" Pratt & Whitney, hollow hex, d. b. g., q. c. g.....	600.
Turret lathe, 3 1/2"x28" Pond, triangular pattern.....	500.

Many additional tools. Send for complete catalog.

USED AND REBUILT MACHINERY

FOR SALE BY

Randle Machinery Co.,

1733 Powers St., Cincinnati, Ohio

Air compressors, all sizes and types.
Bending rolls, various sizes.
Boring mills, 24" to 96".
Bolt cutter, 14" to 2".
Bolt pointer, 1" Acme class A.
Brake, 4' x 14 ga. Robinson pan.
Brake, 12' x 8" Ohi.
Drills, all sizes.
Eye bender, No. 2 Williams & White
Grinder, No. 14-20" Gardner.
Keyseater, No. 8 Catlin.
Lathes, various sizes and types.
Millers, all sizes.
Planer, 36x36x10' Gray 1 head.

Press, No. 91B Toledo.
Press, No. 56C Bliss.
Pipe machines, various sizes.
Punch, style A, 6' L. & A. multiple.
Screw machine, 44" Gridley.
Shapers, 16" to 24" b. g.
Shear, 10' x 14 ga. Stoll, m. d.
Shear, 10' x 3/16" L. & A. m. d.
Shear, 6' x 14 ga. Robinson belt drive.
Shear, Southwark No. 8 ga. rotary.
Turret, No. 1 1/2 Cinti-Acme univ. m. d.
Welders, 200 & 300 motor & gasoline
Wheel press, 150 to 300 tons.

Also many other bargains. Send us your inquiry.

FOR SALE BY

Wachs-Gregg & Co.,

Telephone: Randolph 1822

117 N. Jefferson St., Chicago

Boring machine, Giddings & Lewis
No. 32.
Boring mill, Bullard 60".
Broaching machine, American No. 3.
Drill, Cincinnati Bickford 3' radial,
Drill, W. E. gang 6' radial.
Drill, Foote-Burt 24" heavy duty.
Drill, Harrington, 61 B, multiple.
Drill, Woodward & Rogers 6-apdl.
Drill, Pratt & Whitney No. 12 mult.
Fox lathe, Warner & Swasey No. 3.
Grinders, Nos. 4 and 6 Badger disc.
Grinder, No. 6 Modern internal.
Hammer, Mayer 100 lb. upright.

Lathe, Bradford 32" x 18'.
Lathes, Rockford 16" x 8'.
Lathe, Sidney 17" x 8' q. c. g.
Lathe, Whitcomb-Blaisdell 18" x 8'.
Milling machine, Cinn. No. 2 univ.
Milling mche., Rockford No. 0 plain
Planer, Belmer, 48" x 48" x 12', 3 hds.
Presses, Niagara Nos. 4 1/2-5 1/2 o. b. i.
Screw machine, Foster No. 4.
Shaper, Cincinnati 16" and 20" cone.
Shaper, Walcott, 20" power d. f.
Turret lathe, Pratt & Whitney 8" x 4 1/2"
Turret lathe, Warner & Swasey
No. 2 A.

FOR SALE BY

J. L. Lucas & Son, Inc.,

3 Fox St., Bridgeport, Conn.

We offer for sale from local factory:

Boring mill, 2" Fitchburg horizontal.....	\$ 100.
Lathe, 12"x5' Hendey yokehead.....	575.
Lathe, 14"x6' Hendey yokehead.....	675.
Lathe, 16"x8' Hendey quick change, motor bracket.....	600.
Lathe, 20"x8' Prentice loose change, old but in good order.....	125.
Miller, No. 3 Cincinnati universal, high power, full equipment.....	1,900.
Miller, No. 1 Cincinnati universal, full equipment, cam cutting att.....	600.
Miller, No. 3A Brown & Sharpe universal, serial No. 1180.....	1,650.
Miller, No. 4 Van Norman, all equipment.....	675.
Miller, No. 2 LeBlond plain.....	375.
Planer, 30"x30"x8' Cincinnati single head, cored housing, late type....	500.
Press, EGF 52 Ferracute embossing, like new.....	975.
Press, EGF 53 Ferracute embossing, like new.....	1,275.
Turret lathe, 24" Bullard New Era vertical, a. c. motor drive.....	2,500.

Other equipment, advise your requirements.

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USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

LATHES.

9"x14" Porter-Cable.
13"x 8' Champion.
14"x 6' Davis tool room, q. c. g.
18"x 6' Rahn-Larmon

20"x 8' Monarch q. c. g.
22"x12' Lodge & Shipley q. c. g.
24"x12' Lodge & Shipley q. c. g.
20"x14' Bradford.

SCREW MACHINES AND TURRET LATHES.

No. 0 Brown & Sharpe automatic.
No. 6 Brown & S. semi-automatic.
No. 1 Wood tilted turret.
No. 2½ Garvin p. f. t.

No. 2 Wood tilted turret, b. g.
No. 4 Wood tilted turret g. f. h.
No. 56 National-Acme 4-spindle.
1½" Gridley 4-spindle.

MISCELLANEOUS.

Drill presses, 50 from 10" to 34".
Grinder, combination drill & cutter.
Grinder, No. 3 B. & S. universal.
Miller, No. 2 Cincinnati universal.
Planer, 20"x20"x4'.
Presses, Nos. 2 & 3 Toledo o. b. l.

Shaper, 16" Smith & Mills light.
Shaper, 16" Smith & Mills, heavy.
Shaper, 20" G. & E. b. g.
Spot welder, 25 k. w.
Threading machine, 1" Geometric.
Tapping machines, St. Louis.

FOR SALE BY

McDonald Machinery Co.,

1535 N. Broadway, St. Louis, Mo.

Air compressors, Curtis 10x10 m. d., double cyl.; DeVilbiss 8x6.
Boring mill, Lucas No. 31 horizontal, 24"; Woods 3".

Boring mills, 4 Bullard 42" low price.
Brake, D. & K. 6' 10 gauge, power.
Cut-off mchs., 4 Davis 6" capacity.

Drill, Moline 4-spindle and 22-spd.
Drill presses, Allen and Sipp 4-spd., h. s., b. b., power feed to spindles.
Drills, Leland-G 1-sp. h. s., b. b. floor.
Drills, Sipp 1-spindle, h. s., b. b., H. & W. 2-spindle.

Drills, 20", 24", 26 & 28" b. g., & tap.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 2 universal; B. & S. No. 2 surface, chuck and generator.

Grinders, modern internal; Blount 30", wet (3), Heald 8" mag. ck.; Landis No. 14 int., Landis 16"x42".

Grinders, St. Louis No. 9; Modern 12"x60" safety, 10 h. p. d. c.

Grinder, Pratt & Whitney vert. surf.
Hack saws, 6x6 Racine & Peerless hi speed; Racine 8x8 h. s.; Atkins 8x8", h. s.

Keyseater, Mitts & Merrill No. 2.
Lathes, Hendey 14"x6" q. c. g. yoke head; Davis 22"x10" q. c. g.;

Sidney 16"x6" q. c. g., LeBlond 16"x8" Whitcomb-B. 22"x8" q. c. g., Monarch 16"x8"; C. & J. 15"x8"; Superior 18"x8"; L. & S. & Cinti, 16"x6", q. c. g.; American 22"x10" q. c. g. geared hd.; American 16"x6" q. c. g.; 40 assorted sizes, quick and loose change gear.

Lathes, Greaves-Klusman 24"x16" standard change with chuck.

Milling machines, Ohio No. 20 plain, LeBlond No. 3-H; Brown & S.

No. 3; B. & S. No. 3-B pl., s. p. d.; American No. 13; Kempamith No. 1 Cincinnati No. 3; Becker No. 25 all plain; Kemp No. 3; Cincinnati No. 14; Ohio No. 29 all universal; B. & S. No. 5 vertical; Cincinnati 18" mfg.

Milling and drilling mchs., Knight No. 14 with power feed, vertical.

Pipe machine, Curtis 3", motor dr.; Merrill 4"; Curtis 2½" to 17" m. d.

Planers, Gray 28"x28"x6", 1 head; Cincinnati 36"x36"x18" 2 heads;

Pond, 36"x36"x12" table, 18" bed, 2 heads; Flather 24"x24"x6"; Gray 24"x24"x6", 1 head.

Punches, Reade 15" s. e., 1½" in 1".

Punch presses, 4-Consolidated No. 2; Federal Nos. 1, 2, 3 and 4; Bliss No. 19; Rockford Nos. 2 and 3;

2 horn presses; 3 Bliss No. 21 o. b. l.

Screw machine, Cleveland 24" auto.; P. & W. No. 24 hand; Foster No. 3 hand; Woods No. 2 tilted turret.

Milholland b. g. hand; Foster No. 7 hand b. g.; Acme flat; W. & S. No. 1.

Shaper or slotter, vert., P. & W. 6".

Shapers, S. M. 16"; 24"; Queen City 24" back geared; G. & E. 16", b. g.;

Niles traveling head; Milwaukee 16" b. g.; Walcott 20" b. g.; S. & M. 24" and 26" b. g.; Ohio 16", Cincinnati 20", b. g.; Rhodes 7"; Queen City; Potter & Johnston 16".

Shears, 60" thrt. rotary slitting, (2). Square shears, Niagara 62" power, m. d. 18-ga.; Ohl 18" power 16 gauge.

Steam hammer, Miles-B. 1100 lbs.

Thread miller, Lees-Bradner No. 54.

Turret lathes, Warner & S. No. 2A.

USED AND REBUILT MACHINERY

FOR SALE BY

Wigglesworth Machinery Company

170 Summer Street,

Boston, Mass.

Blocks, Johansson blocks, like new.
Boring mill, 24" bar Rochester.
Boring mill, 54" bar Bement-Miles.
Boring mill, 24" Bullard New Era.
Boring mill, 42" Bullard, side head.
Drill, 6" Prentice radial.
Drill, 2-spindle Allen.
Drill, 3-spindle Pecorp.
Drill, 6-spindle Leland.
Grinder, No. 7 Gardner, like new.
Grinder, No. 27 Blanchard, 60" chk.
Grinder, No. 3 Bryant semi-auto.
hole.
Hammer, No. 8 Standard, auto. drop.
Hammer, 2000 and 3000 lb. new
board drop, 1/2 price.
Hammer, 6000 lb. Sellers, steam.
Lapping mche., Hutto, motor drive.
Lathe, 12"x5' Vernon.
Lathe, 14"x 6' Hendey, taper.
Lathe, 20-40" x 12" Rahn-Larmon
gap, geared head.
Lathe, 22"x24' Lodge & Shipley.
Lathe, 26"x10' Whitcomb-Blaisdell.
Miller, No. 1 B. & S. plain.
Miller, No. 1 Kemp Smith, like new.

Miller, No. 2 Cincinnati plain.
Miller, No. 2 Cincinnati universal.
Miller, No. 4 Cincinnati vertical
s. p. d., rapid traverse.
Miller, 24" Cincinnati automatic.
Miller, 24"x12' Ingersoll slab.
Miller, 60"x12' Newton planer type
slab.
Planer, 36"x36"x20' Pond, m. d.
Planer, 60"x60"x16' Niles-B.-P.
Planer, 72"x48"x12' Pond, motor.
Planer, 84"x56"x16' Gray, 4 heads.
Planer, 72"x60"x16' Detrick &
Harvey open side, like new.
Press, Nos. 18, 19, 20 Bliss.
Press, No. E-51 Ferracute knuckle
joint.
Press, No. 710-E Niagara.
Press, No. 93-B Toledo.
Press, No. 1684 Toledo toggle.
Sceloscope, Shore.
Screw machine, No. 2 B. & S. auto.
Screw machine, No. 4 Warner &
Swasey universal, geared head.
Screw machine, 24" Gridley, 4-spdl.
Slotter, 36" Newton.

FOR SALE BY

Strafer Machinery Company.

14th and Provost St.,

Jersey City, N. J.

BORING MILLS

100" Sellers s. p. d. rapid traverse.
96" Cincinnati s. p. d. rapid traverse.
84" Bullard belt drive.

GEAR CUTTERS

No. 6 Cincinnati 60"x30" m. d.

GRINDERS.

16"x52" Landis self-contained.
16"x48" Landis crankshaft.

KEYSEATERS.

No. 5 Mitts & Merrill belt drive.

LATHES.

84"x40' Putnam modern.
42"x30' Pond cone type.
60"x21' Pond, t. g.
40"x22' Prentice, blocks and chucks.
42"-70"x16' Fay & Scott slide gap.
42"x36" Niles t. g. belt drive.

PLANERS.

48"x48"x16' Pond 4 heads, b. d.
36" D. & H. open side 1-head.

PRESSES.

400 ton W. S. hydraulic 73"x20'.
Hydraulic vertical 38"x43", 75 ton.
No. 2 Bliss double crank.

MISCELLANEOUS.

Beading machine, Bliss.
Boring bars, portable, 4"x8'.
Caterpillar ditcher, B. & G. 24"x8'.
Chuck jaws set for boring mill.
Compressor, I.-R. 8"x6" horiz. m.d.

Compressor, C.P.T. Co. 5 1/2"x5" vert.
Drill, Rockford right angle horiz.
Lathes, Oliver pattern, slide gap.
Pipe machine, 6" Saunders with dies.
Wire straightener, core, to 5/16".

USED AND REBUILT MACHINERY

FOR SALE BY

Severin Machinery Corporation,

Bending roll, 14' Cleveland 4".
Boring mill, Cincinnati 8' vertical.
Boring mill, Sellers, 102".
Hammer, 5N Nazel.
Hammer, Bradley 300 lb.

30 Church St., New York, N. Y.

Mill, horiz., Fosdick 3" bar.
Press, No. 20 Bliss.
Saw, Laidlaw metal.
Upsetter, 2" Acme.
Upsetter, 2 1/2" Acme.

FOR SALE BY

Brown Machinery Co.,

Drills: 24", 26" and 32" Barnes and Rockford; 4-spindle Moline hole hog No. 66D.
Gear hobbors, G. & E. 12" and 24".
Grinders: No. 6 Besly dbl. spindle; No. 220 Badger auto. disk; 12x30" Modern, plain s. c. c. s.; No. 12 Brown & Sharpe, univ., tool, m.d.
Hammer: 40 lb. Bradley, helve; 50 lb. Mayer upright.
Lathes, 30" x 12' Blaisdell: 26" x 12'

Write for prices; send us your inquiries for shop equipment and sheet metal working machinery. We have the stock.

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Putnam, hvy. duty: 20" x 12' Lodge & Shipley, q. c. g.; 18" x 8' Prentice geared head; 16" x 8' Lodge & Shipley q. c. g.; 16" x 6' Monarch q. c. g.; 14" x 5' and 12" x 4' Seneca Falls q. c. g.
Millers: No. 2 Hendey-Norton, univ.; No. 3 Fox; No. 4 Hendey Lincoln Press, No. 7 Zeh & Hahneman.
Threaders: 4" Geometric; National 1 1/2" double hd.; No. 734 Greenfield.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Automatics, No. 53 National-Acme.
Bolt cutters, 4", 4", 1-1/2" single head.
Boring mill, 30" Gisholt, 2 heads.
Boring mill, 34" Colburn.
Boring mill, 36" Niles 2 heads.
Bulldozers, No. 27 Williams-White.
Broach, No. 3 LaPointe.
Car wheel borer, 42" Ridgeway.
Centering mche., Cadillac dbl. end.
Crane, No. 4 Canton portable floor.
Drill, Model "F" Turner turret.
Drill, No. 25 Foote-Burt hvy. duty.
Drill, No. 4 Colburn mfg., 4-spdls.
Drill, D-5 Colburn heavy duty.
Drill, 2" American radial.
Grinder, 12" x 24" Modern plain.
Grinder, No. 14 Gardner disc.
Hammers, No. 2-A, h. d. Hi-Speed, m. d., 3 ph., 60 cy., 220 v., (4).
Hoists, electric, 1 & 2 ton, d.c. mtrs.
Lathe, 16" x 6' Blount patternmakers.
Lathe, 18" x 6' Springfield brass.
Lathe, 17" x 37" x 8' Fay & Scott gap.
Lathe, 19" x 10' W.-B., g. h., s. p. d.
Lathe, 27" x 18' Reed, bargain.
Lathe, 48" x 19' 9" Betts-Bridgeford.
Lathe, 30" x 16' L. & S., q. c. g.
Lathe, 3" x 36" J. & L. flat turret.
Lathe, 18" Libby turret, s. p. d.
Lathe, 21" Gisholt turret, (2).
Lathe, No. 5 Foster turret, grd. fr. hd.
Lathes, No. 4 W. & S. tur., g. f. h.
Miller, No. 2A Milwaukee plain.

Miller, No. 1 Kempsmith plain, universal equipment.
Millers, No. 2 Ohio plain, (2).
Miller, No. 3 Cincinnati plain, m. d.
Miller, 35" x 24" x 10' Newton slab.
Miller, 48" x 48" x 20' Ingersoll.
Miller, No. 2 Cincinnati vertical.
Milling mch., No. 2 Cinti. univ., b.d.
Pipe machine, 6" Jarecki, m. d.
Planer, 24" x 24" x 8' Powell, 1 head.
Planer, 30" x 30" x 8' Powell, 1 head.
Planer, 36" x 36" x 12' Cinti. 2 heads.
Planer, 48" x 38" x 12' Gray, reversible motor drive, 3 heads.
Presses, 3P Ferracute (2).
Press, No. 34-A Toledo Stiles.
Press, No. 39 Bliss horning.
Press, No. 3 Federal, o. b. i.
Press, No. 21 Bliss, o. b. i.
Punch, No. 2 H. & J. horizontal m. d.
Punch, Wickes, 48" thrt., cap. 1 1/2" x 1".
Punch, Cleveland, 60" thrt., 2" x 1".
Radial drill, 4' Fosdick s. p. d., g. b.
Radial, 6' Prentice plain.
Seamers, Bliss, Leffler & Max Ams.
Shaper, 20" Stockbridge b. g. crank.
Shapers, 24" & 32" G. & E., m. d., b. g.
Shear, Model 0-15 Unishear, m. d.,
Shear, bar, No. 14 W. & W. cap. 2" rd.
Shear, No. 0 H. & J. guillotine, b.d.
Shear, No. 103 Bliss circle.
Tapper, nut, 4" Acme semi-auto.
Turret lathe, 30" Gisholt, belt drive.

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USED AND REBUILT MACHINERY

FOR SALE BY

Brandes Machinery Co., - - 1900 Euclid Bldg. Cleveland. Ohio

<p>Drill, 3$\frac{1}{2}$" Cincinnati Bickford single pulley drive. Grinder, No. 60 Heald. Lathe, 27x16 Prentice. Mill, 54" Bullard Maxi, ser. over 11,000. Mill, 6" hor. Diet. & Har. floor type.</p>	<p>Pipe threader, 12" Bignall & Keeler. Pipe threader, 6" Williams m. d. Planer, 96"x16" Pond, 4 heads. Planer, 30"x12" Gray, 2 heads. Planer, 30"x10" Ohio, 2 heads. Press, 6 h. p. Toledo 8" stroke, new. Press, No. 54 Toledo 8" stroke.</p>
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FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Cold header, Manville No. 4 s. d. d. s., fine condition.
 Drill, radial, 5' Fosdick.
 Gang splitter, 36" Yoder, lot of cutters and spacing collars.
 Lathe, 12"x5' Hendey, taper attachment, pan bed.
 Lathe, 12"x4' Porter-Cable toolroom type q. c. g., pan bed, (2).
 Lathe, 16"x5' Cincinnati q. c. g. very good condition, cheap.
 Shaper, 20" G. & E. rebuilt, like new.
 Turret lathe, No. 6 g. f. h., Warner & S., power feed turret and cross slide.
 Turret lathe, No. 2 Bardons & Oliver, g. f. h., power feed to turret.
 Trimmers, Manville Nos. 3 & 4.

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia. Pa.

<p>Automatic No. 00G B. & S., serial No. 9475. Automatic, 1$\frac{1}{2}$" Cone 4-spindle (new 1929). Automatic, 2$\frac{1}{2}$"-F Gridley, 4-spindle. Automatic, $\frac{3}{4}$"-G Gridley, 4-spindle model G. Automatic, 9/16" Gridley, 4-spindle. Automatic, No. 52 Nat'l Acme, 4-sp. Automatic chucking, Goss & DeLeeuw, cap. 6"x6" (new 1929). Bending roll, 23" H. & J. $\frac{1}{2}$ cap. Drill, 20-spindle Natco, No. 2 taper. Drill, 4' Cincinnati Bickford radial, motor drive. Drill, 34" Aurora upright, sliding head, motor drive. Grinder, No. 11 B. & S. cyl. 6"x30". Hammer, No. 1 Nazel belt drive, capacity 2"x2". Hammer, 2000 lbs. Chambersburg, double frame, steam forging. Hammer, 1100 lb. N. B. P., sgl. fr. Lathe, 19"x8' Sidney heavy duty, belt drive, quick change. Lathe, 36"-60"x32" McCabe, belt drive. Lathe, 20"x20' Lodge & Shipley belt drive quick change gear. Lathe, 48"x16' Lodge & Shipley, all geared head. Lathe, 30"x30' Harrington. Miller, No. 3 Becker universal, table 12"x40". Miller, No. 4 Brown & Sharpe plain. Milling mche., No. 3 Garvin duplex.</p>	<p>Pipe machines, 2", 4", 6", 8" & 12" Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock. Pipe machines, Oster portable, gas. drive, all sizes. Planer, 30"x30"x6' Detrick & Harvey openside, belt drive. Planer, 24"x24"x8' Cincinnati belt driven, one head. Planer, 36"x36"x12' Cincinnati, 2 hds. Press, No. 73$\frac{1}{2}$ Bliss trimming press. Press, No. 37 Niagara, 1100 lb. flywheel, solid back. Press, No. 123 Ferracut, geared, double acting, flywheel 475 lb. Press, DD3 Ferracut, dbl. acting. Punch, No. 52 Beloit, belt, capacity 4"x1". Punch, No. 1$\frac{1}{2}$" H. & J. 20" thrt., 8"x1" Punch and shear, 36" Hilles & Jones, cap. 14"x1", belt drive. Punch and shear, 24" Southwark arch jaw, cap. 4"x1", motor drive. Saw, 30" Espen-Lucas, cap. 8". Shaper, 24" Gould & Eberhardt, belt drive. Shear, angle, Type C Long & A. double, capacity 8x8x1 angles. Shear, Niles, plate splitting, 1" capacity, motor driven. Shear, 8' Covington, squaring. gap pattern, 1" capacity. Slotter, 10"-12" Dill, belt drive. Turret lathe, No. 6 Warner & Swasey wire feed.</p>
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USED AND REBUILT MACHINERY

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Boring mill, 3" Lucas horizontal.
Drill, 2 1/2" Fosdick radial.
Drill, 14" Leland-Gifford, h. s.
Drill, 3-spindle Washburn with p. f.
Grinder, No. 2 Wisconsin universal.

Lathe, 14x6 Hendey, q. c. g.
Lathe, 14x6 Champion, q. c. g.
Lathe, 18x6 Ryerson q. c. g., taper.
Miller, No. 2 Rockford plain, h. d.
Planer, 24"x24"x6' American.

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

Automatic, 1", 1 1/2", 1 3/4" & 2 1/4" Gridley.
Broach, No. 4 Oilgear hydraulic.
Bulldozer, No. 2 Williams-White.
Drills, 21" and 24" Cincinnati.
Drills, radial, 3' and 4' Mueller.
Gear hobbers, 18" & 24" G. & E.
Grinders, 6"x32" to 14"x72" Norton.
Grinders, internal, 70 and 75 Heald.
Grinders, sur., Nos. 10 & 16 Blanchard.
Hammer, 40 & 100 lb. Bradley helve.
Keyseaters, Nos. 1 and 1 1/2 Baker.
Lathe, 14"x6" Monarch, t. a.
Lathe, 17"x6" LeBlond, h. d.
Lathe, 19"x10" Sidney.
Lathe, turret, 2A and 3A W. & S.

Lathe, turret, 24" and 36" Bullard.
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Mill, boring, 60" Colburn.
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Mill, horiz. 24" bar, No. 1 Cleveland.
Millers, plain, Nos. 2BS, 2B and 3B Milwaukee.
Millers, univ., Nos. 2 & 3 Kempsmith.
Press, No. 6 Adriance o. b. i.
Press, No. 67 Consolidated tie rod.
Press, No. 165 Toledo toggle.
Planer, 36"x36"x12" Cincinnati.
Shaper, 16", 20" & 24" G. & E.
Threader, 2 1/2" Landis.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS.

36" Bullard New Era type.

42" Bullard vertical.

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2 1/2" Fosdick h. d. radial.
3" Prentice radial.
25" Snyder sliding head.

2-spindle Prentice.
4-spindle Barnes.

GEAR CUTTERS AND GRINDERS.

No. 3, 26"x8" Brown & S., spur.
No. 3 Bilton.
No. 1 B. & S. universal 10x24.

No. 13 B. & S. universal & tool.
18" Diamond disc.
20" Blount wet tool.

LATHES.

30"x20" Fitchburg.
24"x16" LeBlond, h. d., q. c. g.

9" Porter-Cable production.
10x3 bench speed.

MILLING MACHINES

No. 15 Garvin plain, 60" table feed.
No. 2 B. & S. plain, screw feed.
No. 1 B. & S. plain, screw feed.

No. 0 B. & S. plain, screw feed.
No. 13-B B. & S. plain mfg.
Model "AB" Becker vertical.

PLANERS AND SHAPERS

60"x84"x16" Gray, spur gear, 4 heads.
30"x30"x8" Cleveland open side.
16" Smith & Mills plain crank.

24"x24"x6" Whitcomb-Blaisdell second belt drive.

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Nos. 00, 0 and 2 B. & S. automatics.
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16" Warner & Swasey, g. f. h. 1".

No. 4 Warner & Swasey geared friction head.

MISCELLANEOUS.

Arbor press, No. 4 Greenerd.
Hammering mch., No. 2 Langelier.
Hammer, pwr forg., 80 lbs. Bradley.
Power press, No. 2 Manville cut and carry.
Power press, No. 0 Waterbury-F. d. a. geared.
Screw press, No. 2 Standard arch.

Sand blast, No. 1 Leiman.
Squaring shears, 30" Niagara foot.
Rolling mill, McWilliams 8 1/2"x14".
Swaging machine, No. 4 Torrington.
Slotter, 12" Bement Miles.
Tapping machine, No. 1 Garvin vert.
Wood working, surf. planer 24"x3".

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Drill press, Barnes 4-sp. camel back.
Drill press, Superior 20", pwr. feed.
Drill press, Barnes 22", back geared.
Gear hobber, No. 2 Adams-F. (2).
Gear hobber, No. 3 Barber-Colman.
Grinder, 6x32 Norton cylindrical.

Grinder, Badger 24" disc, b. b.
Miller, Kempsmith No. 1 1/2 plain.
Miller, Owen No. 3 pl. vert. head.
Planer, Gray 24"x24"x8'.
Punch press, LaSalle No. 3, o. b. i.
Shear, Excelsior gap, 50", 10 ga., p.d.
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Bliss horn, No. 39.

Consolidated No. 1, o. b. i.
Crosby permanently incl. No. 100.
Screw press, No. 87 Niagara.

LATHES

Canada 26x10, q. c. g.
Gisholt turret.

J. & L. turret, 1 & 2 spindle.
Lo-Swing, Fitchburg 7x36.

DRILLS

Hole-Hog, Moline 6-spindle.
Baker No. 216.
Barnes 2-spindle.

Hamilton 30".
Pilton 3-spindle.
Henry & Wright 1-spindle.

MISCELLANEOUS

Baler, power, Chicago 12x12x14.
Mill, mch., Becker-Brainard No. 25.
Pipe threader, Armstrong 2" to 6".

Shaper, Whipp 16".
Shear, sq., 54" Kutscheid pwr., 16 ga.
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- 7—Aurora 21-24" S. S.
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- 1—Cinti.-Bickford 4" radial, s.p.d.
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- 1—Kingsbury 4-sp. Horiz. D.M.D.
- 1—No. 2 Edlund High Speed.
- 1—Pratt & Whitney 12-spindle.
- 1—No. 5 Fox.

Gear Cutters

- 3—Fellows 36".
- 1—Fellows No. 7 High Speed.
- 1—Barber Colman No. 12.
- 1—Brown & Sharpe No. 3—26".
- 2—No. 36 G & E.S.T. & B.T. Mult.

Grinders

- 1—Diamond No. 1 Univ. Tool & C.
- 1—Thompson Tool & Cutter, Surf.
- 1—Norton Tool and Cutter.
- 18—Norton Pl. Ext. 6x32 to 14x72.
- 5—Heald Int. No. 65.
- 1—Bealy No. 14 Disc.
- 1—Bealy No. 6 Dbl. End. Auto.
- 1—Gardner Disc.
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- 1—Rivett Univ. No. 6 Internal.
- 2—Landis No. 3 Universal.
- 1—Landis 16x48 Crank Shaft.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 1—Bealy No. 17 double end.

Lathes—Engine—Miscellaneous

- 1—American 20x10 B. G. Q. C.
- 5—Lodge & Shipley 16x6, 18x8, 20x10, 22x10, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B.G.
- 5—Greaves & Klusman 18x6, 18x8, 30x8, B. G., Q. C.
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- 1—L. & S. Duplex 12x24" Cr. Pin.
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- 1—Fitchburg 3 1/2x60 Low Swing.
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- 1—Sidney 14x6" B.G., Q.C., T.A.
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1—Potter 7"x2" Bench.

1—Cataract 7"x2" Bench.

Lathes—Turret and Screw Mchs.

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- 2—Gisholt No. 2, D. M. D.
- 2—21" Gisholt.
- 1—3-A Warner & Swasey.
- 2—2-A Warner & Swasey.
- 2—Warner & Swasey No. 6.
- 1—Warner & Swasey No. 2.
- 2—Millholland 1" & 1 1/2" D. M. D.
- 2—Pratt & Whitney 20".

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- 1—Knight No. 2 Vertical.
- 1—Becker No. 5.
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Milling Machines—Horizontal

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- 1—LeBlond No. 4 Plain.
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- 1—1 1/2-B Brown & Sharpe.
- 1—Steptoe Hand with Vert. Att.
- 1—Garvin No. 14.
- 2—Standard Hand.
- 6—Gooley & Edlund Type A 38.

Presses—Punch

- 2—No. 14 Williams-White.
- 2—Consolidated No. 4 O. B. I.
- 1—Marshalltown No. 3 O. B. I.
- 1—Bliss No. 2 O. B. I.

Planers

Cincinnati 42x36x16"

Screw Machines—Automatic

- 4—Gridley 3/4" 4-spindle.
- 1—3/8" Gridley 4-spindle.
- 6—National Acme Nos. 51, 53 and 55 Multiple spindle.
- 1—Millholland No. 2 Hand, Motor.
- 1—Millholland 1 1/2".

Shapers

- 2—American & Whipp 16" Crank.
- 1—Potter & Johnston 24" Crank.
- 2—Gould & Eberhardt 24" Crank.

Shears

- 1—Niagara 8" Squaring Motorized.
- 2—Quickwork Rotary, 60" throat.

Miscellaneous

- Bolt Threader, Acme No. 2-A.
- Broach, LaPointe No. 3 M. D.
- Cutting & Coiling, Baird No. 2.
- Straight'g Presses, Geier Nos. 2 & 3.
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 36"x14" Lodge & Shipley, Q. C.
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 D.B.G.; Bowl hd.; Q.C., late type.
 21"x11" LeBlond, Grd. Head, Q. C.
 S. P. D.
 24"x10" American, Grd. Head arr.
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 17"x10" LeBlond, 3 SCD; DBG; QC.
 18"x8" Reed-Prentice Grd. Hd. Q. C.
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 Nos. 2 & 2½ Bath Universal.
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 18-H Gould & Eberhardt Hobber.
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 18" Gleason Gear Generator.

Bolt and Pipe Threaders

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 1½" Landis Sgl.-Sp., Grd. Hd. m. d.
 1" Acme Class "A" Single-Spindle.
 2" Landis Sgl.-Sp., lead screw attach.
 2" Landis Double-Spindle.

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 48" Colburn Vert. 2 sw. hds., late type.
 60" Bullard Vertical 2 hds., S. P. D.
 60" Niles Boring Mill, 2 heads.
 No. 1 Rockford, Horizontal 2" bar.

Milling Machines

No. 5 Brown & Sharpe Plain.
 No. 4 Cincinnati, Plain.
 No. 3-B Milwaukee Plain, Double
 overarm. Late type.
 No. 3 Cincinnati, Plain.

No. 2-B Milwaukee Plain, double
 over-arm.

Nos. 3; 5-B; 6 Baker Vert.
 No. 3 Cincinnati Vert. H. P., S.P.D.
 No. 2 Cincinnati Universal H. P.
 flange nose: S. P. D.
 No. 1½ Milwaukee, Double Over-arm,
 S. P. D. Universal.
 No. 3 Cincinnati High Power Univ.
 S. P. D. flange nose.
 No. 2-A B. & S. Univ. S. P. D.
 5" Pratt & Whitney Automatic.
 18" Cincinnati Automatic, M. D.
 24" Cincinnati Automatic, M. D.
 No. 33 Kempnath Automatic.
 No. 7-H Becker Lincoln type.
 No. 1 Knight Miller and Driller.
 No. 3 & 3-E Lees-B. Thread Millers.

Planers

24"x24"x8" Gray Planer.
 27"x27"x8" Woodward & Powell.
 36"x36"x10" Gray, 2 heads.
 26"x26"x12" Whitcomb-B., 2 heads.
 96"x96"x14" Betts Planer, 4 heads.

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4' & 3' Cincinnati-Bickford, S. P. D.
 3' & 4' American Tr. Grd. SPD, MD
 22" Barnes Camel Back.
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 3-sp. Avey High Speed Ball Bearing.
 4-Spd. Foote-Burt Independent Feed.
 6-spindle Rockford 20" B. G. P. F.
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Shapers

16" and 20" Gould & E. High Duty.
 24" Gould & Eberhardt; High Duty.
 24" Queen City heavy duty, cone dr.

Miscellaneous

9" Vulcan Press Brake.
 No. 3 J. N. LaP. Broaching Mche.
 Nos. 1 & 2 Davis Keyseaters.
 No. 3 Baker Keyseater.
 No. 42 Toledo Horning Presses.
 No. 94 Ferracute Dbl. Cr. Grd. Press.
 No. 56 Adriance Dbl. Cr. Str. S. Press.
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 1¼" thru 1¼".
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| 1—Henry & Wright Single Spindle, h. s., b. b. | 1—28" Aurora B. G. P. F. |
| 1—Two-Spindle Allen h. s., b. b., hand feed. | 1—28" Barnes B. G. P. F. |
| 1—Three-Spindle Allen h. s., b. b., hand feed. | 1—3" Corley Plain S. P. G. B. Dr. |
| 1—3-Spindle Leland-Gifford High Speed. | 1—4" Pond Plain arranged for mtr. |
| 1—3-Spindle Allen Power Feed. | 1—5" American Plain motor drive. |
| 1—3-Spindle Allen Hand Feed. | 1—6" Mueller Plain S. P. G. B. dr. |
| 1—Four-Spindle Barnes gear driven power feed. | |
| 2—1-Spdl. Foote-Burt Hvy. Duty. | |
| 1—No. 3 Minster hvy. d., 3¼" cap. | |
| 1—No. 310 Baker Bros. hvy. d. drill | |
| 1—22" Aurora B. G. P. F. & Tap. | |
| 1—25 Superior B. G. P. F., T. A. | |
| 1—24" Barnes B. G. P. F. | |
| 1—4" Mueller Plain, s. p. g. b. drive radial. | |
| 1—4" Hammond radial drill with tapping attachment motor driven. | |

GEAR CUTTERS AND HOBBS

- 1—No. 3-26" B. & S. Gear Cutter.
1—No. 12 Barber-Coleman Hobber motor drive.

GRINDERS

- | | |
|--|-----------------------------------|
| 2—No. 11 Plain B. & S. Grinders. | 2—No. 14-48 B. & S. Pl. Grinders. |
| 2—No. 12 Plain B. & S. Grinders. | 1—No. 2 B. & S. Univ. Grinder. |
| 1—6"x18" Landis Plain self-contained, belt driven. | |

LATHES (Engine and Turret)

- | | |
|-------------------------------------|-------------------------------|
| 1—12"x 5" American. | 1—20"x10" Lodge & Shipley. |
| 1—12"x 6" Seneca Falls. | 1—18"x12" Boye & Emmes, c. r. |
| 1—16"x 8" Bradford. | and t. s., q. c. g. |
| 1—16"x 8" LeBlond. | 1—20"x16" Lodge & Shipley. |
| 1—16"x 8" Lodge & Shipley. | 1—24"x16" Lodge & Shipley. |
| 1—16"x12" Prentiss Geared Hd. | 1—24"x20" Lodge & Shipley. |
| 1—18"x 8" Schumacher & Boye. | 1—30"x14" Johnson. |
| 1—18"x 8" Cincinnati. | 1—30"x16" Lodge & Shipley. |
| 1—18"x 8" Boye & Emmes. | 1—32"x28" Bullard. |
| 1—18"x10" Walcott. | 3—18" Libby Type A motor dr. |
| 1—20"x10" Boye & E. c. r., q. c. g. | 4—26" 4½" Hole Libby Type C |
| 1—20"x10" Walcott. | motor drive. |

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1394 W. Third St., Cleveland, Ohio

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SHAPERS AND PLANERS

- 1—20" American B. G. Cone Drive.
- 1—16" Smith & Mills Plain Crank Cone.
- 1—16" Smith & Mills B. G. Cone.
- 1—18" Gould & Eberhardt B. G. Cone.
- 1—20" Cincinnati B. G. Cone.
- 1—22"x22"x 5' Putnam Spur Geared, 1 Head.
- 1—30"x30"x12' Gray 2 Heads, belted motor.
- 1—36"x36"x12' Niles Spur, 2 Heads, D. C. Motor.
- 1—36"x60"x14' Gray Spiral Geared, 2 Heads, belt.
- 1—38"x38"x10' Pond Spur Gear, 2 Heads, belt.

MILLING MACHINES

- 1—No. 6 Whitney Hand, belt drive.
- 1—No. 2-B Hendey Universal, cone drive.
- 1—No. 3 Brown & Sharpe Plain, cone drive.
- 1—No. 3 Cincinnati Vertical, constant drive.
- 1—No. 2-A Milwaukee Manufacturing, constant drive.
- 1—18" Cincinnati Duplex Automatic.

SCREW MACHINES

- 1—No. 3-A Latest Type Hollow Hex, motor driven, (Warner & Swasey) 97% new.
- 1—No. 4 Warner & Swasey P. F. Turret H. F. Slide.
- 1—No. 6 Warner & Swasey P. F. Turret H. F. Slide.
- 1— $\frac{3}{8}$ — $\frac{1}{2}$ " B Cleveland Automatic.

MISCELLANEOUS

- | | |
|--|---|
| 1— $1\frac{1}{2}$ " Acme Dbl. Bolt Cutter. | 1—No. 19 Bliss. |
| 1—8" Jarecki Pipe Machine. | 1—No. 3 Rockford. |
| 1—2" Etna Cut-Off Machine. | 1—Cleveland Geared Press. |
| 1—No. 3 J. N. LaPointe Broach. | 1—No. 2 Garvin Duplex Slotter. |
| 1—No. 4-B Cochrane-B. Cold Saw. | 1— $\frac{1}{2}$ " R. & S. Vertical Tapper. |
| 1—No. 2 Consolidated. | 1—4-Sp. Acme Vert. Nut Tapper. |

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2832 East Grand Blvd., Detroit, Michigan

Some Very Choice Presses

- No. 6½ Bliss double crank, tie rod frame, 8" stroke, single geared, 48" between housings, 15 H. P. 220 volt 3 phase 60 cycle motor. Only two years old.
- No. 426½ Hamilton double crank, tie rod frame, stroke 8", single geared, 42" between uprights, 6" shaft. 10 H. P. 220 volt 3 phase 60 cycle motor. 4 years old.
- No. 8 Consolidated open back press, 6" stroke, geared, belted motor drive, 7½ H. P. 220 volt 3 phase 60 cycle motor.
- No. 78½ Bliss straight side single crank. tie rod frame double geared, arranged for motor. Stroke 12", 36" between uprights. From bed to slide 23". 10" diameter shaft.
- No. 59¼ Toledo straight side single crank, tie rod frame double geared, arranged for motor. Stroke 11", between uprights 41", from bed to slide 19½".
- No. 3 Consolidated open back inclinable, 3" stroke.
- No. 2 Consolidated open back inclinable, 2½" stroke.

Other Choice Machines

- Two 6"x32" Norton plain grinders, excellent condition.
- Walker tool & universal grinder, unit drive, with equipment.
- No. 2 Clough vertical miller excellent condition.
- No. 1½B Milwaukee vertical miller, with rotary table, single pulley drive. Power feed to rotary. Excellent cond.
- Two 21" Gisholt turret lathes, 2 step cone, rebuilt.
- 9/16" five spindle Nat'l Acme model C auto. screw machine with 7½H. P. 220 volt 3 phase 60 cycle motor.
- Two 1¾" Model G Gridley automatic screw machines, with A. C. motors.
- 2" Model G Gridley auto. screw machine, with A. C. motor.
- Three 24" Cincinnati automatic millers, one never used, each with 5 H. P. A. C. motors.
- No. 4-36 Cincinnati "Hydromatic" miller, with 10 H. P. A. C. motor, used only two weeks.
- Five 8"x18" Cincinnati grinders, self contained, 10 H. P. A. C. motors, one used a year, others only three months.

300 other machines in stock—

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24" Hollingworth B. G.	\$575.	16" Cincinnati s. p. d.	\$ 475.
24" Barker, B. G.	600.	16" Smith & Mills open belt dr.	100.
16" Barker, cone drive Vise.	175.	16" Hendey friction.	150.
16" Gould & E. Crank b. g.	575.	22"x22"x6" Gray ex. condition	450.
16" Hamilton Crank, b. g.	395.	30"x30"x10" American Planer.	525.

DRILL PRESSES

28" Superior, s. h., d. b. g.	\$ 225.	20" spdl. Moline Rail, 1 15/16" spindles No. 5 M. T.	\$1050.
26" Prentice, s. h., d. b. g. s. p. d.	325.	12 and 15 Spindle Moline Rail Drills, 94" rail spread adjust.	725.
2-sp. Rockford Sensitive.	150.	No. 30 Natco arr. 34-spindles.	2450.
4-sp. Kokomo Hi-Spd. 3/4" cap.	525.	4" Fosdick Holloway Radial.	575.
4-spindle Kern Hi-Spd., 3/4" cap.	400.	4' & 5' Pond Radials each.	650.
4-sp. Allen Hi-Speed 3/4" cap.	475.	No. 2 Fox 8-sp. Multiple, m. d.	400.
2-4-spindle Allen late type, practically new, each.	475.		
4-spindle Barnes all geared.	485.		

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42"x24" Pond face plate dr.	\$685.	14"x6" Mulliner q. c. tap. att.	\$395.
35"x19" Pond face plate dr.	500.	14"x6" Flatner q. c. by. pat. (2)	345.
20"x8" Atlas, q. c. d., b. g. Ck.	375.	12"x5" Hendy q. c. Yoke hd.	375.
18"x8" Hendy q. c. yoke hd.	675.	9"x12" Sundstrand grd. h. (2)	140.
18"x8" Gidding & Lewis q. c.	365.	14"x6" Monarch q. c. d. b. g. (2)	210.
17"x9" LeBrond Cr'kshaft (2)	285.	14"x6" Walcott q. c. tap. att.	225.
16"x6" Bradford q. c. tap. att.	425.		

GRINDERS

10"x50" Norton Plain.	\$ 750.	36" Knife Grinder, Motor Dr.	300.
10"x72" Landis pl. self-cont.	1125.	No. 6 Rivett Internal.	425.
10"x72" Brown & Sharpe Pl.	795.	No. 6 Bryant Internal Grinder	200.
6"x32" Norton Plain (2), each.	275.	No. 2 Union Cutter Forming.	350.
No. 70 Heald Int., water equip.	725.	12"x40" P. & W. vert. surface.	785.
6"x18" Landis Plain, s.-con.	495.	No. 2 B. & S. Surf., m. d.	425.
No. 11 Brown & S. self-cont.	785.	No. 2 B. & S. Surf. h.f., arr. m. d.	300.
24"x24"x6" Pond Pl. type Surf.	\$ 450.		

SCREW MACHINES AND AUTOMATICS

No. 2 B. & S. Hand (2) ea.	\$ 375.	No. 54 Ntl.-Acme Auto. (4) ea.	\$ 350.
No. 4 B. & S. Turret Lathe p. f.	675.	1" Model A Cleve., ex. cond.	300.
No. 3 W. & S. Uni. Brass Lathe	350.	2 1/2" Model B Cleveland Auto.	350.
2 1/2" Acme Turret complete eq.	325.	No. 72 National-Acme Auto.	200.
3/4" & 3/8" Gridleys 4-spdl.	350.	No. 6A Potter & Johnson auto. Ser. No's over 18000.	575.
1 1/2" Gridley 4 sp. (4) ea.	450.	Model G Gridley 4-spindle 3/4" cap. perf cond. (4) (FOR THE LOT).	3500.
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1 1/2" Model F very late 4-Spindle Gridley Perfect condition (2).	1250.	2 1/2" Model F very late 4-Spindle Gridley complete equip (3) Lot.	6000.

MILLING MACHINES

No. 1 Kearney & T. s. p. d.	\$ 495.	No. 5 Becker Vertical table 14"x42", rebuilt.	\$ 550.
No. 2 B. K. & T. pl. vert. hd.	1150.	No. 2 B. & S. Vert. fair cond.	300.
No. 2 Rockford s. p. d.	700.	No. 4 Garvin Vert. Prof.	275.
No. 1 1/2 American Plain.	350.	30"x30"x12" Ingersoll Hor. Sp.	750.
No. 6 Becker Vert. Late type	975.	7H Lincoln type (2) ea.	125.
No. 6 Becker Vert. Oldertype	585.	No. 2 Cincinnati old pat. (2) ea.	300.
No. 5 Becker Vert. tabl. 13"x49"	450.		

MISCELLANEOUS

No. 6 Fellows 35" Gear Shaper	\$ 250.	60" B. & S. Gear Cutter.	\$1075.
No. 3 LaPointe Hudson Broach	450.	1" Acme Stud Threader.	385.
No. 2 LaPointe Broach.	250.	No. 1 Baker Keyseater 1 1/2" cap.	250.
2" Robbins Pipe Mch., M. D.	185.	No. 14 Higley 6" Cold Saw.	225.
2" Williams Pipe Machine.	175.		

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- Nos. 3 Kemp Smith Univ., cone pul. comp.
 No. 2A B. & S. Univ., s. p. d., comp.
 No. 5 Cin. Pl. arr. m. d., rect. overarm.
 Nos. 4 3 & 2 Cinti. Hi-Pwr. Plain, s. p. d.
 Nos. 3-B, 2-B, 2-B S & 1½-B Special Milwaukee Plain, s. p. d., dbl. overarm.
 No. 2G LeBlond Plain, s. p. d.
 Nos. 3, 2-H & 1½ Brown & S. Pl., c. p.
- Nos. 3 & 4 Cincinnati Hi-Power Verticals, S. P. Drive, (late type).
 No. 3 & No. 4-B Becker Vert., cone p.
 No. 21 Brown & Sharpe Auto., s. p. d.
 40" Ohio Tilted Rotary Miller, s. p. d.
 48", 24", 18" Cincinnati Auto. Duplex.
 48", 24" & 18" Cincinnati Plain Auto.
 No. 33 Kemp Smith Prod., s. p. d.

SHAPERS AND PLANERS

- 28" G. & E. Hi-Duty B. G. Crank.
 25" Springfield H.D., B.G., Crk. s.p.d.
 25", 20" S. & M. h. d., b. g., Crk.
 24" G. & E. Hi-Duty B. G. Cr. arr. m. d.
 20" Cincinnati H. D., B. G., Crank.
 20" S. & M. H. D., B. G. Crank s. p. d.
- 20" Columbia H. D., B. G. Crank.
 16" Smith & Mills Plain Crank.
 33"x33"x8" Ohio Planer, 2 heads.
 24"x24"x10" Liberty, one head.
 48"x48"x20" Cincinnati Tu-Speed, 4 heads, box table.

RADIALS AND UPRIGHT DRILLS

- 6", 5" & 4" American Tr. Purp. Pl., g. b. d.
 5" & 4" Cin.-Bickford Plain, g. b. d.
 4" Fockick Plain, gear box drive.
 2½" Carlton B. B. Sens. Radial tapping.
 36", 32", 24" & 22" Aurora Upright.
 34", 26", 22" Barnes Upright, late type.
 28", 24" & 21" Cincinnati-Bickford Up.
 2, 3, 4, 6-spindles Leland-Gifford B. B., power feed, No. 2 Morse Taper.
- 2, 4, 6-spindles No. 2 Avey B. B., p. f., No. 2 Morse Taper.
 1, 2, 3 & 4-sp. No. 2 Colburn Mfg., H.D.
 D2, D3 and D4 Colburn Heavy Duty.
 No. 1SS Garvin Horiz. Duplex.
 No. 2 Detroit Semi-Auto. Horizontal.
 No. 14 Natco Mult. Spindle, 12 spdl.
 No. 1 Bausch Multi. Spindle, 9 spindles.

ENGINE AND TURRET LATHES

- 12"x6" Hendey yoke head, q. c. (late).
 14"x8" Reed-P. Grd. Hd. q. c., taper.
 18"x8" L. & S. Sel. Grd. Hd. Q. C.
 20"x10" American Hi-Duty G. H. q. c.
 16"x12" Amer. H. D., G. H., Q. C.
 24"x16" Lodge & S., q. c., taper att.
 27"x16" American Grd Hd., q. c., taper.
- 36"x20" American Hi-Duty Geared Head, Q. C., A. C. Motor Drive.
 36"x20" Bridgeford Grd. Hd. Q. C.
 24" & 21" Gisholt Turret taper att.
 26" Libby Type "C" Turret.
 Nos. 3-A 2-A & 4 W. & S. Univ. Turret
 Nos. 2, 4, & 6 Warner & Swasey Turret.

GEAR MACHINERY AND GRINDERS

- Nos. 2, 3 & 12 Barber - C. Gear Hob.
 No. 18-H G. & E., H. D. Gear Hobber.
 Nos. 6, 61 & 615 Fellows Gear Shapers.
 10x24", 10x36", 10x52" Landis Plain Self-Contained.
 No. 70 & No. 75 Heald Internal.
 No. 13 B. & S. Auto. Spur & Bevel.
- Nos. 1 & 2 Diamond Auto. Surf. mag. chlk.
 No. 2 B. & S. Auto. Surf. Mag. Chuck.
 No. 16-26" Blanchard Vert. Surf., b. d.
 14" Pratt & W. Vert. Surf., rot. chuck.
 Nos. 1½ & 2 Cinti. Univ. Tool & Cutter.
 No. 29-53" Besly Vertical Horizontal Disc Grinder, A. C., M. D.

MISCELLANEOUS

- Automatics, Nos. 5-A & 6-A P. & J.
 Boring Mill, No. 1 Lambert Hor., 3" dia.
 Bor. Mills, 24 & 36" Bullard R.P. Vert.
 Bor. Mill, 72" Niles Tool Wks. Vert., 2 hd.
 Die Sinks, Nos. 2 & 3 P. & W.
 Press, No. 91D Toledo dbl. cr. grd. Pwr.
- Press, No. 83C Mich. Dbl. Crk. Grd. Pwr.
 Press, No. 206B Toledo d. c., grd. Pwr.
 Press Brake, 10" Robinson Pwr., 10 ga.
 Shear, No. 396 Niagara 96" Pwr. Cap. capacity 10 gauge.
 Shear 10" Bertuch Pwr. Cap, cap. 3/16".

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"Restored" Machines

MILLERS

- 9-Cincinnati Plain Nos. 2, 3, 4, 5.
- 1-Cincinnati Vert. Nos. 3, 4.
- 4-Cincinnati Universal No. 2, 3, 4.
- 5-Milwaukee Pl. No. 1, 2-B, 3-B.
- 2-Milwaukee Vert. No. 2 1/2.
- 7-Kempsmith Plain Nos. 2, 3.
- 2-Kempsmith Univ. Nos. 2, 3.
- 5-LeBlond Univ. Nos. 2, 2 1/2, 3, 4.
- 2-Knight No. 2, No. 3.
- 5-Becker No. SD, No. CS.

PLANERS

- 2-24x24x10 W. Blaisdell.
- 1-30x30x8 N-B-Pond.
- 1-30x30x12 Cincinnati.
- 1-36x24x12 D. & H. Openside.
- 1-36x36x10 N-B-Pond.
- 1-36x36x14 N-B-Pond.
- 1-42x42x22 Cincinnati.
- 1-60x60x18 Cincinnati.
- 1-72x72x16 D. & H. Openside.
- 1-96x48x12 D. & H. Openside.

LATHES

- 1-90" Putnam Wheel.
- 1-84x36 Putnam.
- 1-72x28 Putnam.
- 1-72x58 N-B-Pond.
- 1-59x28 N-B-Pond.
- 1-56x18 N-B-Pond.
- 1-50x36 Pittsburg.
- 1-48x24 N-B-Pond.
- 1-48" N-B-Pond Wheel.
- 1-42x39 Putnam.
- 1-42x28 N-B-Pond.
- 1-36x14 Bridgeford.
- 4-30x20 American.
- 2-30x12 American.
- 2-24x12 Schumacher-Boye.
- 1-21x10 LeBlond.
- 1-18x10 Lodge-Shiple.
- 1-18x10 Hendey.
- 1-17x10 LeBlond.
- 1-16x8 Monarch.
- 1-16x6 American.
- 1-14x5 Monarch.
- 1-12x5 Sidney.

GEAR CUTTERS

- 4-B-Coleman Nos. 3, 12.
- 4-B. & Sharpe Nos. 13, 3, 6.
- 2-Newark No. 2-B.
- 3-G. & E. Nos. 18-H, 12-H.
- 9-Gleasons, 6, 11, 15, 15".

GRINDERS

- 6-B. & Sharpe Nos. 1, 2, 3, 13.

- 9-Norton 18x96, 14x72, 14x50, 10x72.
- 2-Blanchards, No. 16 Surface.
- 3-Diamond Surface Nos. 2, 3, 5.
- 8-Heald Nos. 60, 65, 70, 72.
- 2-Besly No. 1, No. 2, No. 10.
- 4-Landis 16x48, 16x68, 16x72.
- 1-Sellers No. 1 Drill.
- 1-B. & Coleman No. 2 Hob.

BORING MILLS

- 1-16" Betts Vertical.
- 1-12" Niles Vertical.
- 1-10-16" Niles Extension.
- 1-100" N-B-Pond Vertical.
- 1-96" Betts Vertical.
- 1-72" N.-B.-P. Vertical.
- 1-72" Sellers Vertical.
- 1-62" N-B-Pond Vertical.
- 1-52" Gisholt Vertical.
- 2-48" Colburn Vertical.
- 2-44" N.-B.-Pond Vertical.
- 1-24" Bullard Vertical.
- 1-54" Bar Niles Horizontal.
- 1-48" Bar N-B-Pond Horizontal.
- 1-72" N.-B.-P. Duplex Horiz.
- 1-No. 3 Barrett Cylinder.

AUTOMATICS

- 6-B. & S. Nos. 00, 0, 2.
- 9-Gridley 1, 2, 12, 14, 24, 2-4
- 2-14" Fays.

TURRET LATHES AND SCREW MACHINES

- 9-W. & S. Nos. 2, 4, 6, 2-A, 3-A.
- 4-P. & W. 1x15, 1 1/2x18, 2x26, 3x36.
- 3-Libby 18", 26".

DRILLS (Multiple Spindle)

- 3-Moline Nos. 11-D, 5-D, 2-D.
- 4-Baush Nos. 2, 3, 4.
- 6-Natco Nos. 12, 13, 14, 15, 37.

DRILLS (Upright)

- 6-Aurora 22, 24, 28, 30".
- 12-H-Wright 1, 2, 3, 4, 5, 6 spindles.
- 6-Edlund 1, 2, 3, 4 Spindles.
- 3-Minster No. 2-D.
- 4-Colburn Nos. 1-D, 2D, 4D.

DRILLS (Radial)

- 1-3" American Plain.
- 1-4" Cincinnati-Bickford Plain.
- 1-5" Western Plain.
- 1-6" American Plain.
- 1-7" Drees Plain.
- 1-8" American Triple Purp. Plain.
- 1-6" American Universal.
- 1-5" Drees Universal.

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NEW 3 PHASE MOTORS CHEAP—FROM ½ H. P. UP

LATHES

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| 12"x 5' Cleveland, geared head. | 18"x 6' American qk. ch., taper att. |
| 14"x 6' Carroll-Jamieson, new, q. c. | 18"x 10' American, quick change. |
| 14"x 6' Hamilton, grd. hd., motor dr. | 20"x 10' Hamilton, rapid production. |
| 14"x 6' Monarch, quick change. | 24"x 14' LeBlond. |
| 16"x 8' Hamilton, quick change. | 24"x 24' Prentice, with raising block. |
| 17"x 8' LeBlond quick change. | 8x60" & 3½x60" Fitchburg, Lo-Swing |

TURRET LATHES and SCREW MACHINES

- | | |
|---------------------------------|-------------------------------------|
| No. 52 National Acme automatic. | 14" capacity Smurr & Kamen. |
| No. 53 National Acme automatic. | 14" Milholland. |
| No. 54 National Acme automatic. | 2x24 and 3x36 J. & L. |
| 21" Gisholt, motor drive. | No. 1 Foster, 13/16" capacity, (2). |
| 24" Gisholt, motor drive. | 1" Pratt & Whitney. |

SHAPERS

- | | |
|--------------------------------------|-------------------------------------|
| 14" Niles, traveling head. | 24" Rockford, back geared, crank. |
| 16" O. & S. b. grd., new, low price. | 24" O. & S. back geared crank. |
| 16" Rockford crank. | 25" Smith & Mills, back grd. crank. |
| 20" Smith & Mills back grd. crank. | 15" Smith & Mills, motor drive. |

PRESSES

- | | |
|------------------------------------|----------------------------------|
| No. 10 and No. 15 Excelsior, foot. | Nos. 1, 2 and 3 Federal o. b. i. |
| Nos. 3-A & 5-A Willard inclinable. | No. 39 Bliss hornring. |
| Nos. 1, 1½, 2, 2½ Robinson, new. | Emco bench. |

DRILLS and RADIALS

- | | |
|----------------------------|---|
| 4-spindle Demco H. S. new. | 22", 24", 26", 28" and 32", sliding hd. |
| 4-spindle Avey H. S. | 24" Bickford, tapping attachment. |
| No. 1 Baush multiple. | 32" Hoefler, sliding head. |
| No. 310 Baker heavy duty. | 6" Ceiling drill. |
| Baush 5' radial. | 44" Stover. |
| Hilbert 3' radial. | Hole Hog, No. 66-D, 7-spindle |

MILLING MACHINES

- | | |
|----------------------------------|-------------------------------------|
| No. 1½ American plain. | No. 2 H Brown & Sharpe plain. |
| No. 4 LeBlond plain. | Ingersoll 24" x 20" x 8" horizontal |
| No. 25 Bilton. | motor drive. |
| No. 7 Becker, Lincoln type. | No. 12 Brown & S. (Lincoln Type). |
| No. 25 Becker plain, power feed. | No. 4 Lees-Bradner thread miller. |

GRINDERS

- | | |
|----------------------------|---------------------------------------|
| No. 1 W. & M. surface. | Schmitt cylinder grinder. |
| 6"x 15" Fitchburg plain. | No. 3 Ohio universal tool and cutter. |
| 16"x 42" Landis universal. | J B X, W. & M. tool and cutter. |
| 36" and 66" Yates plate. | No. 10 Resly 18" double disc. |
| No. 60 Heald cylinder. | No. 20 Bryant, chucking. |

MISCELLANEOUS

- | | |
|--------------------------------------|--|
| Band saw, Clark, compound. | Planer, 36"x 36"x 14' Gray, 2 heads. |
| Band saw, Napier 10"x 10". | Planer, 42"x 42"x 12' Gray, 2 heads. |
| Blower, No. 6 Piqua, pressure. | Punch & shear, 1½"x 10" throat. |
| Blower, positive pressure, Leiman | Riveting hammers, Nos. 1, 2, 3, 4-A |
| Boring mill, Colburn No. 3, tur. hd. | High Speed. |
| Brake 10', Keene, 18 ga. | Sand blast, Boland. |
| Broaching mchs., 1 and 3 LaPointe. | Scale, 1500 lb. Toledo, dial type. |
| Compressors, 6x8, 8x8 and 9x8. | Shear, 38", 18 gauge, power. |
| Furnace, Weco electric. | Shear, No. 262 Robinson. |
| Gear cutter, No. 3—26" B. & S. | Shear, 10' Loy-Nawrath 3/16" cap. |
| Gear miller, Bilton No. 1. | Shear, circular, Pettingell, 60" thrt. |
| Hammer, 150 lb. Standard drop. | Threading mche., W. & P. 2-spindle. |
| Pipe machines, 2", 4" & 6". | Washing machine, parts Blakeslee. |
| Planer, 24"x 24"x 6' Gray. | |

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PUNCHES: Rock River 16" throat, cap. 1" through 1". E. F. Cleveland, 24" throat, $1\frac{1}{4}$ " through 1". No. 2 Hilles & Jones, 20" throat, 1" through $\frac{3}{4}$ ", rapid action. Long & Allstatter, 48" throat, $2\frac{1}{4}$ " through 1". Williams & White No. 14, $1\frac{1}{4}$ " through 1", plane tbl.

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- 3-spd. Henry & Wright high speed
- 4-spd. Allen high speed
- 2-spd. Barnes 24" camelback.
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- 2—No. 416 Baker heavy duty
- 24" Cincinnati sliding head
- 32" Aurora sliding head
- 2—Barnes horizontal single spindle

GRINDERS

- 1—No. 1 Brown & Sharpe universal
- 2—No. 2 Brown & Sharpe universal
- 1—No. 3 Brown & Sharpe universal
- 1—10x36 Thompson universal
- 3—No. 10 Brown & Sharpe plain
- 1—No. 11 Brown & Sharpe plain
- 2—6x32 Norton plain
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- 1—16"x6' Monarch geared head motor in base, late type.
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- 1—16"x8' Monarch geared head motor in base, late type.
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- 2—No. 00 Brown & Sharpe automatics
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- 2—No. 1 Kempsmith plain
- 1—No. 1½ American plain
- 1—No. 2 Kempsmith plain
- 1—No. 2 Brown & Sharpe plain
- 1—No. 2 Cincinnati plain
- 1—No. 3 Cincinnati plain
- 1—No. 4 LeBlond plain
- 1—No. 1 Cincinnati univ. with D. H.
- 1—No. 1D Brown & Sharpe universal with D. H.
- 1—No. 2 Cincinnati univ. with D. H.
- 1—No. 3 Cincinnati vertical
- 1—No. 2M Potter & Johnson auto.

PLANERS

- 1—24"x24"x6' Whitcomb 1 H.
- 1—24"x24"x8' Cincinnati 1 H.
- 1—26"x26"x8' Woodward & P. 2H.
- 1—36"x36"x12' Bickett 2 H.

SHAPERS

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- 2—16" Gould & Eberhardt
- 1—20" Gould & Eberhardt
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- 1-20"x18" Monarch.
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- 2-18"x12" Reed-Pren., Gd. Hd.
- 2-16"x12", 6" Monarch.
- 1-16"x8" Reed-Pren. Gd. Hd.
- 1-16"x8" Greaves-Klusman G. H.
- 1-16"x8" Hendey Geared Head.
- 1-16"x8" Hendey, oil pan.
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- 1-No. 20 Oesterlein Universal.
- 1-No. 2-A Hendey.
- 11-Nos. 6, 5, 4-B, 1 Becker Vert.
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- 2-Nos. 5, 3 B. & S. Vertical.
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- 2-44" Putnam Vertical.
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- 1-6" American Universal.
- 2-5", 3" American Triple Pur.
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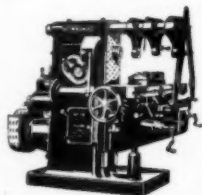
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Index of Advertisers

A

Acme Industrial Co.	89
American Hollow Boring Co.	62
American Tool Works, Inc.	88
Anderson Bros. Mfg. Co.	85
Armstrong Bros. Tool Co.	41
Armstrong-Blum Mfg. Co.	22-23
Atlas Press Co.	52
Automatic Machine & Engineering Co.	132
Avey Drilling Machine Company	25

B

Bartlett Co., Edwin E.	53
Baumbach Mfg. Co., E. A.	82
Bay State Tool & Machine Co.	32
Brandes Machinery Co.	111
Bennett Machinery Co.	133
Boston Gear Works Sales Co.	60
Box Crane & Hoist Corp.	35
Bellefleur & Son Co., A. C.	48
Brandt Machinery Co.	106
Broadway Machinery Co., Inc.	128
Browa Machinery Co.	110
Brownell Machinery Co.	112
Browning & Co., Inc., Victor R.	75
Buffalo Forge Co.	56
Burke Machine Tool Co.	56

C

Canton Foundry & Mche. Co.	55
Chicago Gear Works	60
Cincinnati Mch. & Supply Co.	115
Cleveland Twist Drill Co.	69
Colonial Broach Co.	51
Conway Clutch Co.	11
Crofoot Gear Corp., C. E.	63
Cushman Wheel Co.	18

D

Davis Keyseater Co.	77
Davis Machinery Exchange	104
Defiance Machine Works	7
Delta Specialty Co.	43
Detroit Stamping Co.	58
Donahue Steel Products Co.	123

E

Eastern Machinery Co.	120
Economy Engineering Co.	64-65

Edgemont Machine Co.	81
Elco Tool & Screw Corporation	28
Esley Machinery Co., E. L.	133
Etco Tool Co., Inc.	Front Cover
Exchior Tool & Machine Co.	72

F

First United Finance Corp.	138
Fisher Equipment	
Foot-Burt Co.	24
Foster Machinery Co.	104

G

Gallmeyer & Livingston Co.	13
General Machinery Corp.	106
Genesee Manufacturing Co., Inc.	88
Glenzer Co., J. C.	68
Grant Mfg. & Machine Co.	58

H

Hagen, H. J.	75
Hammond Machinery Builders, Inc.	9
Hammond Manufacturing Co.	10
Hannifin Manufacturing Co.	
	Inside Front Cover
Hardinge Brothers, Inc.	
	Inside Back Cover
Hartford Special Machinery Co.	89
Haskins Co., R. G.	67
Hendley & Whittemore Co.	21
Heuser Mfg. Co.	57
Hill, Clarke & Co., of Chicago	127
Hunt & Son, C. B.	37
Hyman & Sons, Joseph	128

I

Illinois Testing Laboratories, Inc.	62
Indianapolis Machinery & Supply Co.	114
International Machinery Co.	131

J

J. & H. Electric Co., Inc.	
James Mfg. Co., D. O.	63
Jarecki Machine & Tool Co.	30
Jarvis, Inc., Benj. E.	
Johnson & Sons Mch. Co., Wm. C.	105
Jones Machine Tool Co.	105

Index of Advertisers—Continued

K

Kearney & Trecker Corp.....	130
Keller Mechanical Engineering Corporation.....	36
Kinsey Co., E. A.....	130
Klauber Machinery Co., E. L.....	108
Koza, Chas. A.....	45

L

LeBlond Mch. Tool Co., R. K.....	70-71
Leland-Gifford Co.....	2
Lenney Mch. & Mfg. Co., Inc.....	14
Lewthwaite Machine Co., T. H.....	78
Libert Machine Co.....	54
Linley Brothers Co.....	52
Lucas & Son, Inc., J. L.....	107

M

McDonald Machinery Company.....	108
Madison-Kipp Corporation.....	16
Mall Tool Co.....	66
Marr-Galbreath Machinery Co.....	103
Martin Tool & Die Works, J. E.....	80
Massachusetts Gear & Tool Co.....	61
Midwest Equipment Co.....	113
Mid-West Machine Tool & Supply Co.....	99
Miles Machinery Co.....	112
Miller & Crowningshield.....	
Monarch Machine Tool Co.....	5
Morey and Co. Inc.....	131

N

National Acme Co.....	3
National Machine Tool Co.....	76
Nicholson & Co., W. H.....	87
Norgren, Co. Carl A.....	34
Norton-Broadway Mch. Co.....	102

O

O'Brien Machinery Co.....	111
Oesterlein Machine Co.....	132
Oliver Instrument Co.....	82
Osborne & Sexton Mch. Co.....	122

P

Palmer-Edwards Co.....	124
Pedrick Tool & Machine Co.....	20
Peerless Machine Co.....	54
Peerless Surfacing Machine Co.....	76
Plunket Machine Co., J. E.....	86
Porter-Cable-Hutchinson Corp.....	59
Porter Machine Co., J. E.....	55
Precision Gauge & Tool Co.....	68
Precision Tool Co.....	44
Procnier Safety Chuck Co.....	81

R

Rahn-Larmon Co.....	6
Randle Machinery Co.....	107
Reeve-Fritts Company.....	112
Reliance Mch. Sales Co.....	110
Reynolds Machine Company.....	29
Ridge Tool Co.....	38
Riverside Machinery Depot.....	125
Russell Machine Co.....	129
Ruthman Machinery Co.....	61

S

Saltzman, B. L.....	113
Schellenbach-Hunt Tool Co.....	98
Scherr Co., George.....	74
Schwerdtle Stamp Co.....	77
Scott-Bansbach Mch. Co.....	100
Sebastian Lathe Co.....	4
Segal & Co., Herbert "Action".....	126
Segal Machinery Co.....	100
Seifreut-Elstad Machinery Co.....	129
Severin Machinery Corporation.....	110
Sheldon Machine Co.....	49
Siewek Tool Company.....	79
Sigourney Tool Co.....	80
Simmons Machine Tool Corp.....	121
Smith & Mills Co.....	50
Springfield Machine Tool Co.....	85
Stackbin Corporation.....	39
Standard Electrical Tool Co.....	8
Standard Gage Co., Inc.....	74
Standard Shop Equip. Co., Inc.....	
State Machinery Co., Inc.....	99
Stevens Inc., John B.....	27
Stoehr Machinery Co., A. M.....	99
Stoody Company.....	17
Strafer Machinery Co.....	109
Strand & Co., N. A.....	66
Strong, Carlisle & Hammond Co.....	116-117

Please say "Blue Book" when writing to advertisers.

Index of Advertisers—Continued

Sundstrand Machine Tool Co....		W	
..... Back Cover		Wachs-Gregg & Co.	107
Superior Machine & Eng. Co. ...	26	Wade Tool Co.	83
Superior Tool & Die Co.	83	Walls Sales Corporation.....	76
Surfacer Manufacturing Co.	19	Walton Co.	87
Surplus Material & Mch'y. Co....	99	Wardwell Manufacturing Co.....	12
		Wash Co.	86
T		Wells Manufacturing Corporation	73
Taylor-Hall Welding Corporation	102	Wertman Machinery Co., M. A.	111
Taylor & Fenn Co.	33	West Penn Machinery Co.	101
Thompson Grinder Co.	50	Western Machine Tool Works...	51
Townsend Mfg. Co., H. P.	53	Western Tool & Mfg. Co.	84
Toledo Machinery Exchange,	119	White Machinery Co., A. D.	118
Tomkins-Johnson Co.	140	Whitney Metal Tool Co.	42
		Whirlwind Products Co.	40
U		Wigglesworth Machinery Co.	109
United Machinery & Supply Co. 99		Wilder Tool Co.	84
United States Drill Head Co.	79	Wilson, K. R.	31
U. S. Electrical Tool Co.	15	Winterer, Herman L.	106
Used and Rebuilt Machinery..99to	135	Winterhoff Tool & Machine Co.	57
		Winternitz & Co., Samuel L.	135
		Witek Manufacturing Co.	47
		Z	
V		Zoerman-Clark Mfg. Co.	46
Vim Electric Tool Co.	59		

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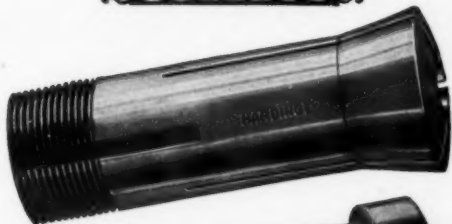
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